COPPER RIDGE TENTATIVE SUBDIVISION

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Prepared for:

City of Hanford

317 S Douty

Hanford, CA 93230

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PROJECT INFORMATION

This document is the initial study for the potential environmental effects of the Copper Ridge Development Project proposed in the City of Hanford. To consider the Project, the City will need to approve initiating the annexation of the property to the City of Hanford, General Plan Amendment, Pre-zone, Planned Unit Development and Tentative Subdivision Map. The City is the lead agency for the Project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

Project Name

Copper Ridge Tentative Subdivision Map

Lead Agency

City of Hanford
317 N. Douty Street
Hanford, CA 93230

Mailing Address and Phone Number of Contact Person

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Project Location

The Project is located in Kings County, south of the City of Fresno and west of the City of Visalia. The Project Site is north of the City of Hanford city limits, along the eastern boundary. The proposed Project Site is located on approximately 83.61 acres north of Grangeville Boulevard, east of 9 ¼ Avenue, south of Leland Avenue, as shown in Figures 1 and 2. APNs 014-143-069 and 014-143-078.

Project Applicant

N & M Capital LLC
1878 N. Mooney Blvd., Suite J
Tulare, CA 93274
(559) 799-6993

Project Description

The proposed Project is a Planned Development and Tentative Subdivision Map on 78.16 acres, which includes 350 single family residential units, 300 multiple family units; and 5.45 acres of Neighborhood Commercial Mixed Use development (Project Site). Although the development of the commercial shopping center is conceptual, it is estimated that it may include two fast food restaurants, two general retail stores, and one gasoline/diesel fueling station with an associated mini mart. For purposes of environmental analysis, the maximum square footage of commercial space will be 37,700.

The proposed Project also includes the annexation, general plan amendment and pre-zone of the 78.16 acre Project Site. At the request of the City and the Kings County Local Agency Formation Commission (LAFCo), approximately 63.73 acres to the north of the Project Site are included in the proposed annexation for a total Annexation Area of 141.89 acres, as shown on Figure 1. No changes to the existing uses are proposed within the additional 63.73 acres included in the annexation and no development is proposed. The purpose of including the additional acreage is to eliminate the creation of a substantially surrounded area in the County and to ensure orderly growth of the City of Hanford. The impacts evaluated in the Initial Study are limited to the Project Site, as no changes are proposed in the Annexation Area.

The development of the Project Site would result in on-site infrastructure improvements, including the addition of streets, curb, gutter, sidewalk and lighting along all four sides of the development and within the subdivision and the development of the commercial area. Construction will include the connection to City water, storm drain and sewer within the development and connection to existing lines in 9-1/4 Avenue, Leland Way and Grangeville Blvd. as well as other utilities such as electric, gas, and communication lines. The development of the Project Site will not import or export fill as a result of the development. A temporary on-site stormwater basin is also included in the development.

The Project Site includes two parcels, comprising 78.16 acres; APNs 014-143-069 and 014-143-078. The additional Annexation Area encompasses 63.73 acres APNs 014-143-022, 014-830-011, 014-830-010, 014-830-013, 014-830-014, 014-830-015, 014-830-016, 014-830-017, 014-830-018.

Project Approvals

The following permits and approvals required for the development of the proposed Copper Ridge Tentative Subdivision Map are listed below. It should be noted that this list is not exhaustive, and additional permits and approvals may also be required.

- Annexation
- General Plan Amendment from Low Density to Medium Density and Neighborhood Mixed Use
- Pre-zone to RM (Medium Density Residential), RL-5 (Low Density Residential 5,000 sq. ft. minimum) and MX-N (Neighborhood Mixed Use)
- Copper Ridge Tentative Subdivision Map
- Copper Ridge Planned Unit Development (PUD) to allow a mix of densities
- Tentative Parcel Map to allow the phasing of the development
- San Joaquin Valley Air Pollution Control District (SJVAPCD)- Rule 9510 Indirect Source Review (ISR)
- Central Valley Regional Water Quality Control Board, Stormwater Pollution Prevention Plan (SWPPP)

Figure 1 Vicinity Map

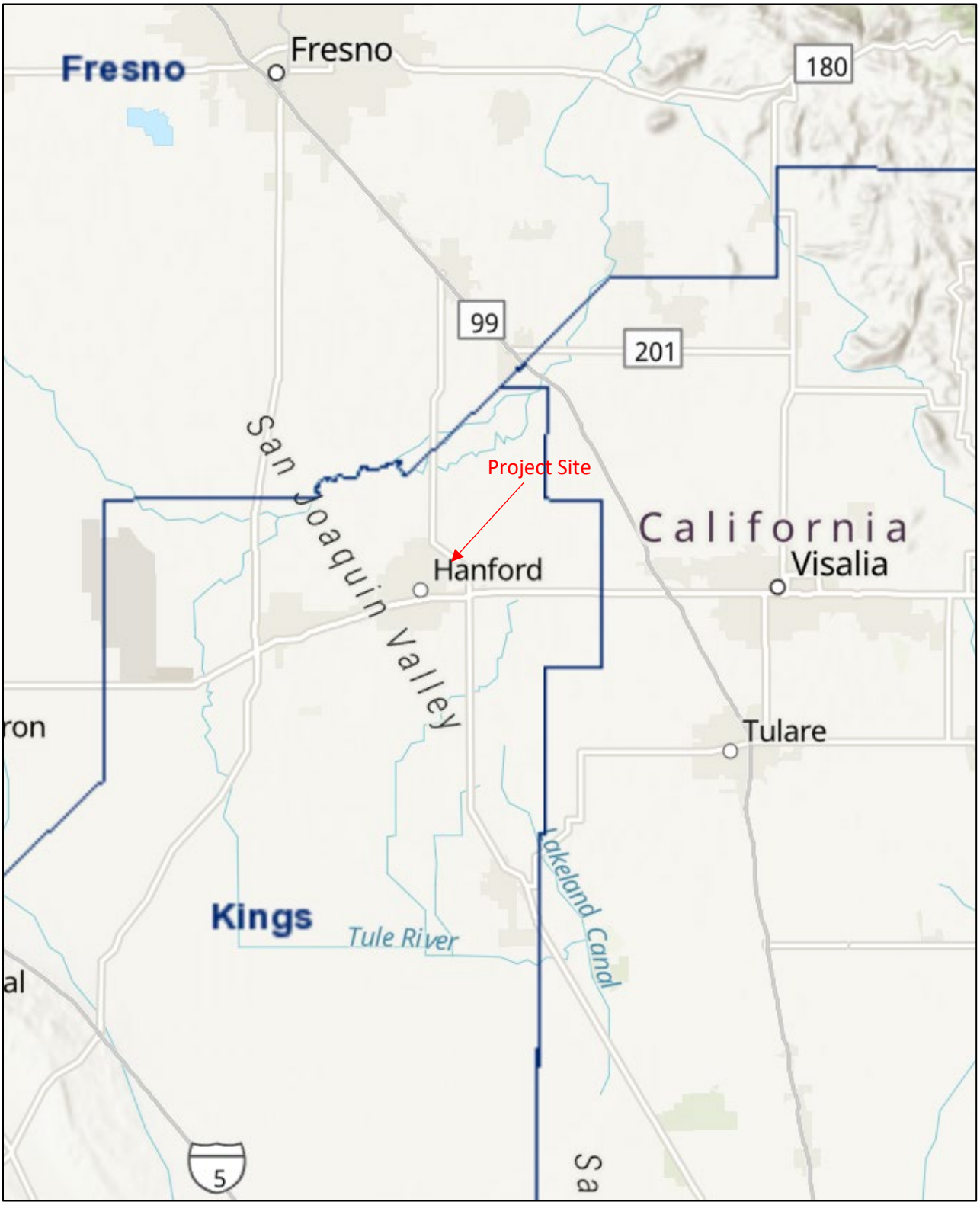
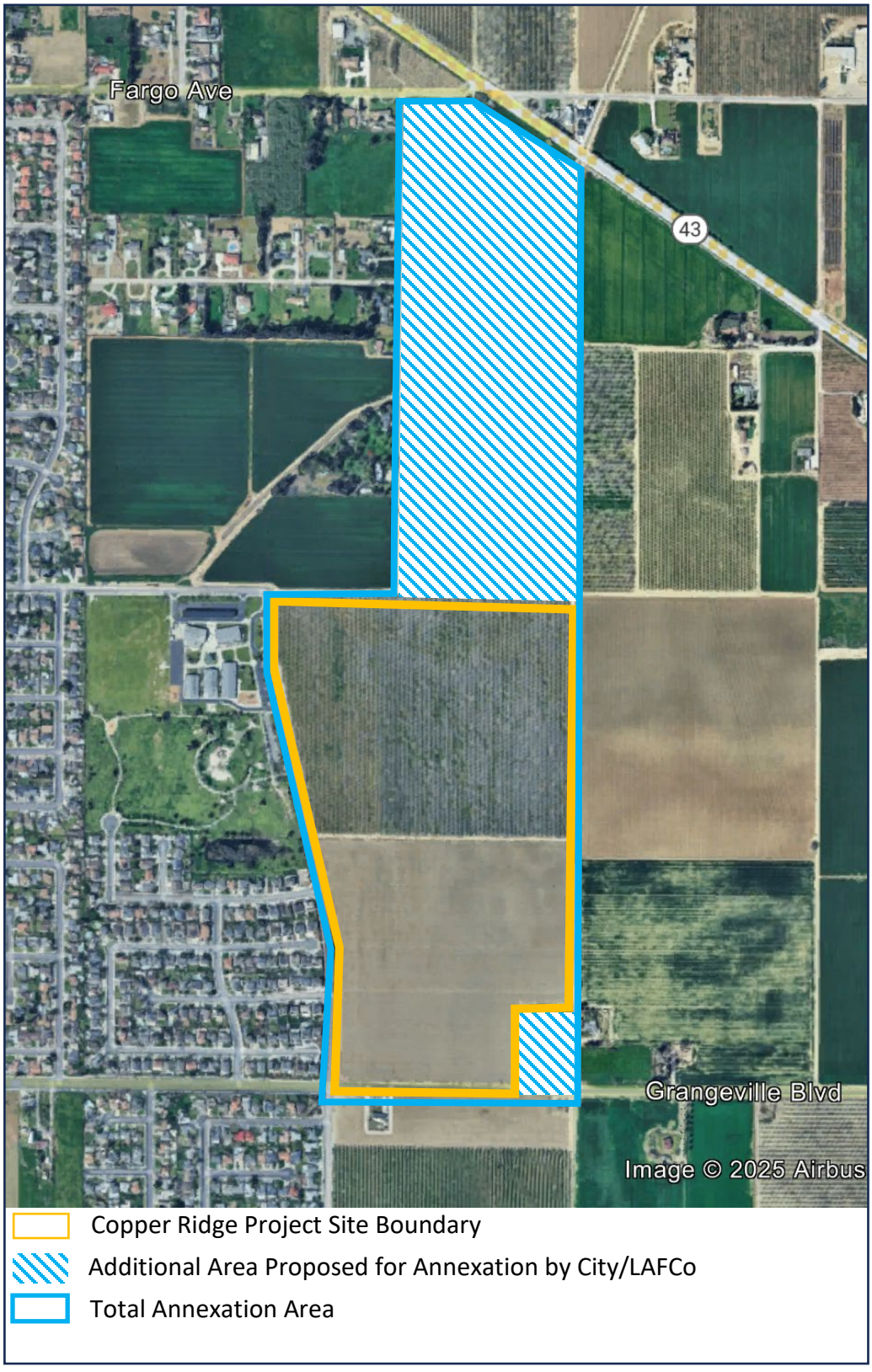


Figure 2 Project Boundary and Annexation Area



Project Phasing

The Project will be developed in at least six phases beginning with Phase 1 at the northwest corner of the Project site. Each phase will take approximately six months to construct the infrastructure and estimated to take up to two years to build out. Phases and unit counts are described below:

Phase 1	181 units
Phase 2	150 units
Phase 3	89 units
Phase 4	110 units
Phase 5	120 units
Phase 6	37,700 square feet of Neighborhood Commercial

Parking and access

Vehicular access to the Project will be from two driveways on Grangeville to the south, three local streets to 9-1/4 to the east, two local streets to Leland Way to the north and three local streets and one driveway to 9th Avenue to the east, as shown in Figure 7. Each single-family residence will include a two-car garage. The multi-family and commercial development will provide parking in accordance with the Hanford Municipal Code based on the final development square footage and uses.

Project Description: Surrounding Land Use Designations and Settings:

North: County/Existing Agricultural

South: County/ Existing Agricultural

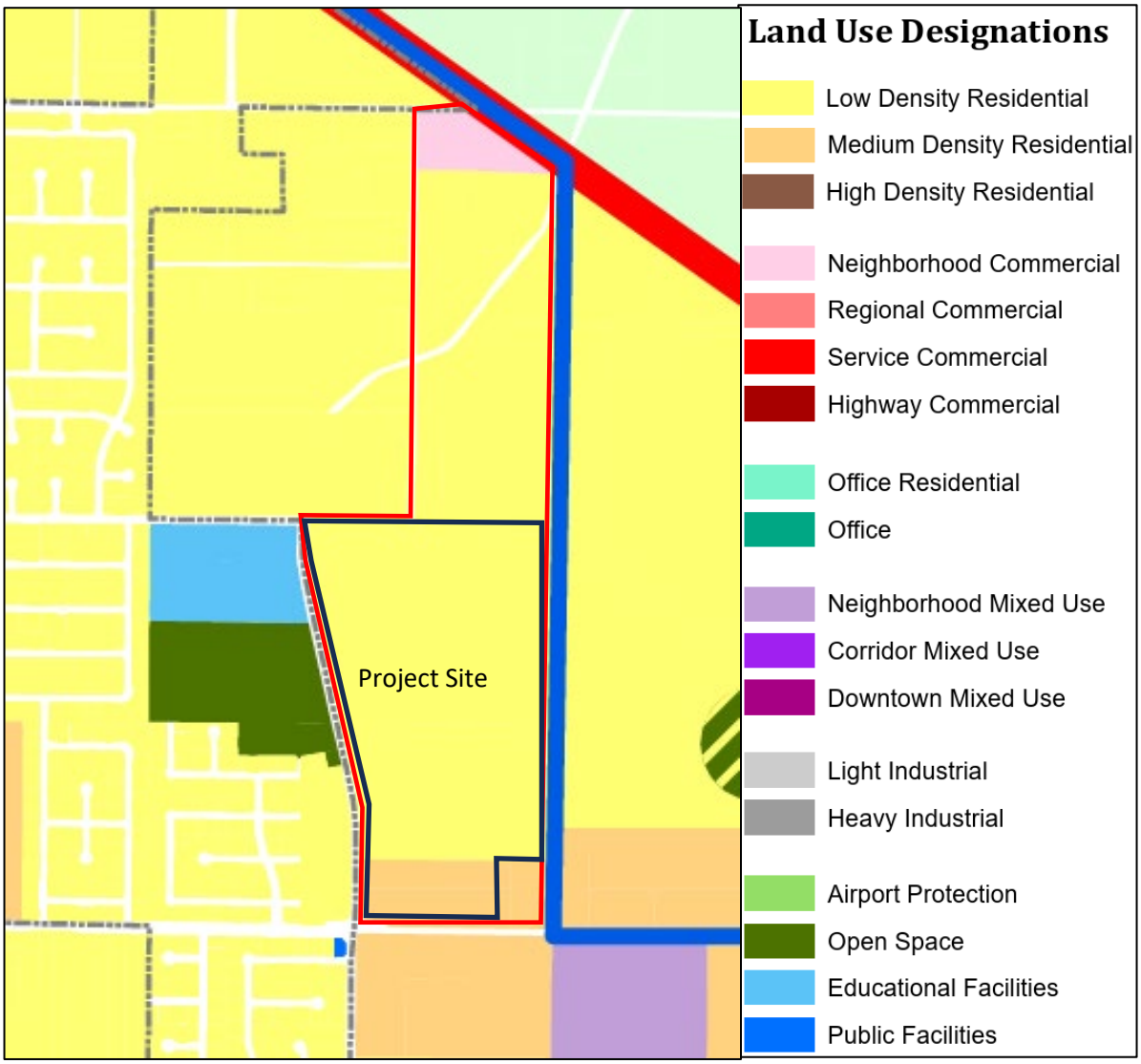
East: County/Existing Agricultural

West: Low Density Residential, Open Space, Public facility/ Existing Residential, Agriculture and public school.

General Plan Designation

The annexation area, shown in red, is designated as Low Density Residential, Medium Density Residential and Neighborhood Commercial in the Hanford General Plan as shown in Figure 3 below. The applicant is requesting a general plan amendment to change the land use from Low Density Residential to Medium Density Residential and Neighborhood Mixed Use within the Project Area.

Figure 3 General Plan Map



Zoning Designation

The site is currently in the County zoned agriculture shown as green in Figure 4 below. The project area is anticipated to be pre-zoned R_L-5, Low Density Residential, R-M Medium Density Residential, and MX-N Neighborhood Mixed Use Commercial as part of the proposed Project, as shown in Figure 5.

Figure 4 Zone Map

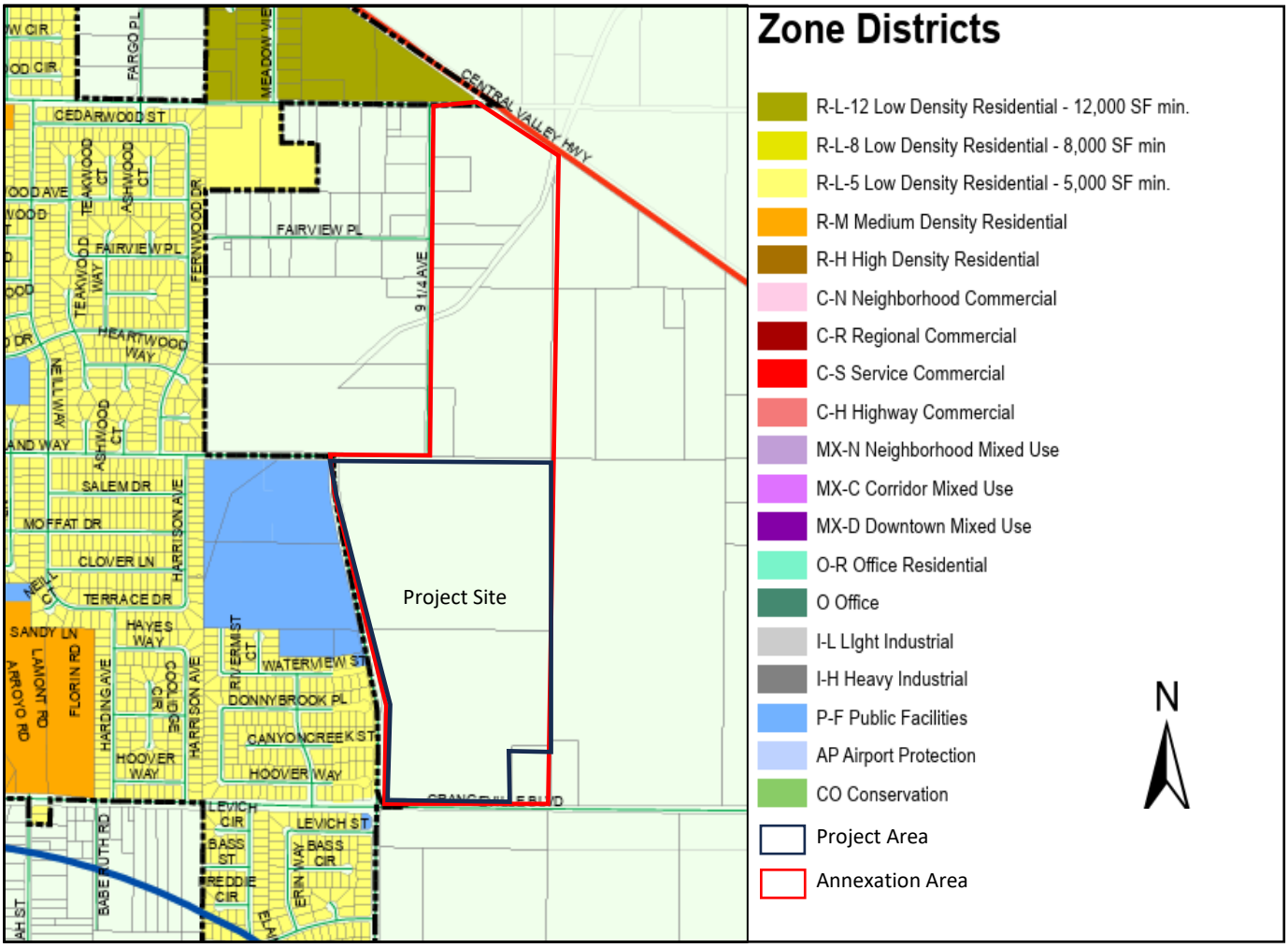
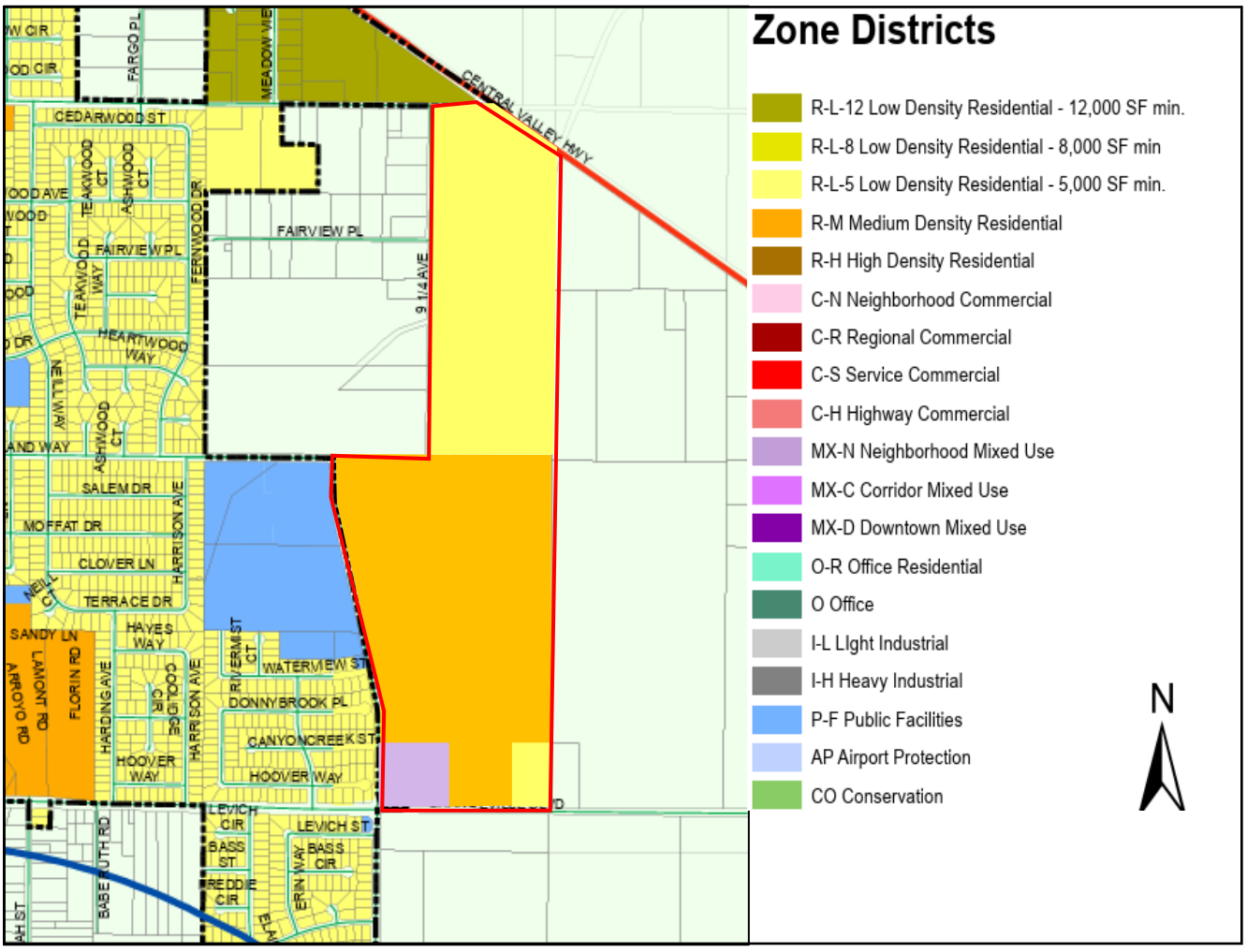


Figure 5 Proposed Zones



Native American Consultation

The City of Hanford has received a request for notification from the Santa Rosa Rancheria Tachi Yokut Tribe in accordance with AB 52. Because the Project includes a general plan amendment, a notice in accordance with SB 18 was also required. A list of Native American Tribes was obtained from the Native American Heritage Commission (NAHC) and notices of the proposed project were sent to the following tribes on December 4, 2024. No responses were received.

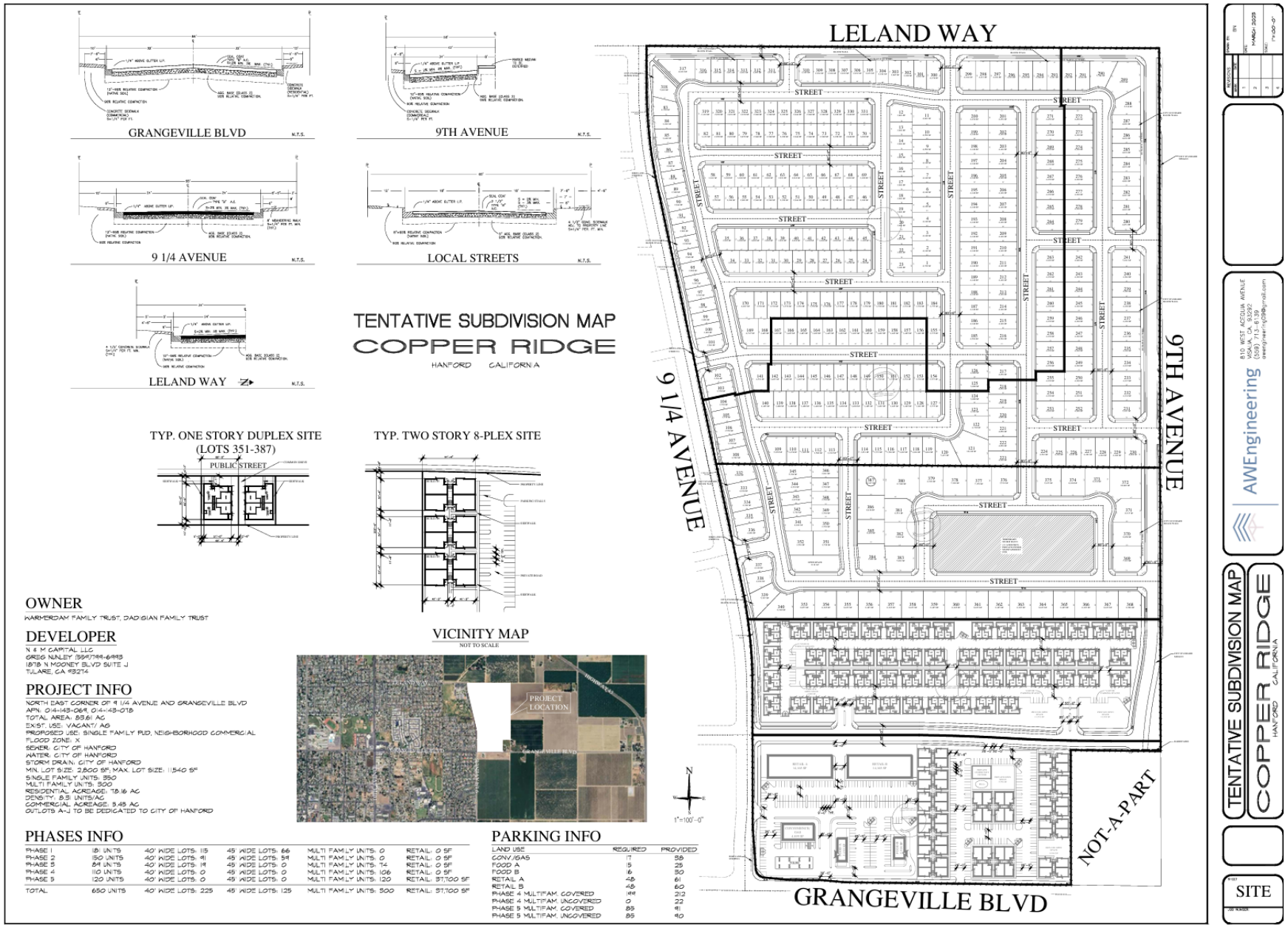
- Kitanemuk & Yowlumne Tejon Indians
- Santa Rosa Rancheria Tachi Yokut Tribe
- Table Mountain Rancheria
- Tule River Indian Tribe
- Wuksachi Indian Tribe/Eshom Valley Band

Early Consultation

On December 23, 2024, the City of Hanford submitted a pre-consultation request to the Office of Planning and Research (OPR). In response, the California Department of Conservation (DOC) and Department of Toxic Substances Control (DTSC) submitted written comments, which can be found in Appendix A. A summary of the comments is found in each pertinent discussion in the environmental checklist; Agricultural Resources and Hazards and Hazardous Materials respectively.

Figure 6 Project Location Aerial View

Figure 7 Coopper Ridge Tentative Subdivision Map



ENVIRONMENTAL DETERMINATION

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forest Resources	☐ Hazards and Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use and Planning	☐Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Population	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency) Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION WILL BE PREPARED.

☑ I find that although the proposed project could have a significant effect on the environment, therewill not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A Negative Declaration is required, but it must analyze only the effects that remain to beaddressed.

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is requested.

City of Hanford Date

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should beexplained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on- site, cumulative as well as project-level, indirect as well as direct, and construction as wellas operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analyses Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined fromthe earlier document and the extent to which they address site-specific conditions for theproject.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to apreviously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance

INITIAL STUDY/ENVIRONMENTAL CHECKLIST

The following section provides an evaluation of the impact categories and questions contained in thechecklist and identify mitigation measures, if applicable.

I. AESTHETICS

Except as provided in Public Resource CodeSection 210999, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☑	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?	☐	☐	☐	☑
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☑	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

Environmental Setting

The Project Site includes approximately 78.16 acres. The northern approximately one-half of the Project Site is currently in agricultural production with the remaining, approximately 35 acres currently fallow agricultural land. To the west of the Project is an existing residential development, an elementary school and public park. To the south and east of the Project area is agricultural land, to the north is rural residential, agricultural and State Route 43.

Discussion

a) Would the project have a substantial adverse effect on a scenic vista?

A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. According to the 2035 General Plan Background Report, there are no scenic lands identified as a resource by the City, County or routes by the California Office of Transportation. here are no buildings or natural features located on the Project Site. The project would not substantially alter scenic views and would not block or impede surrounding views as the development will comply with City of Hanford development standards pertaining to height of buildings. Therefore the project would not result in substantial adverse effect on a scenic vista and

impacts would be considered ***less than significant.***

Mitigation Measures: None Required

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within state scenic highway?

According to the 2035 General Plan Background Report, there are no Officially Designated State Scenic Highways within the City of Hanford Planning Area. The closest is State Route 198, east of State Route 99. The City Municipal Code Chapter 12.12 Street Trees and Shrubs, contains provisions to protect heritage trees. Section 12.12.020 defines a heritage tree as "(1) any Oak Tree native to Central California, Valley Oak Tree (*Quercus lobata*), with a diameter greater than 10 inches; or (2) any tree or a group of trees specifically designated by the city council for protection because of its historical significance, special character or community benefit." The Project Site does not contain any Valley Oak Trees or trees that have been designated as protected by the City Council. There are no other resources such as rock outcroppings or historic buildings in the area, therefore there is ***no impact***.

Mitigation Measures: None Required

c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The proposed Project is not currently developed and is adjacent to non-urbanized area to the north, south and east. The proposed Project would not degrade the visual character or quality of the site and surroundings but will result in a change from the agricultural character. The Project includes a general plan amendment and pre-zone to allow the small lot development with a planned unit development and multi-family units. As amended the Project would be consistent with zoning and other regulations, therefore the impact is ***less than significant***.

Mitigation Measures: None Required

d) Would the project create a new source of substantial light or glare which would adversely affectday or nighttime views in the area?

The proposed Project would result in new lighting sources on the Project Site. New lighting sources would include interior and exterior lighting from residences and street lighting as well as parking lot and interior and exterior lighting from the multi-family and commercial areas. All street lighting will be consistent with the City's lighting standards, which are developed to minimize impacts related to excessive light and glare. The City standards reduce light and glare impacts by including watt maximums, shielding and location criteria based on public safety. Although the Project will introduce new light sources to the area, all lighting will be consistent with nearby residential and commercial land uses and the City's lighting standards. Therefore, impacts are considered ***less than significant***.

Mitigation Measures: None Required

II. AGRICULTURE AND FOREST RESOURCES:

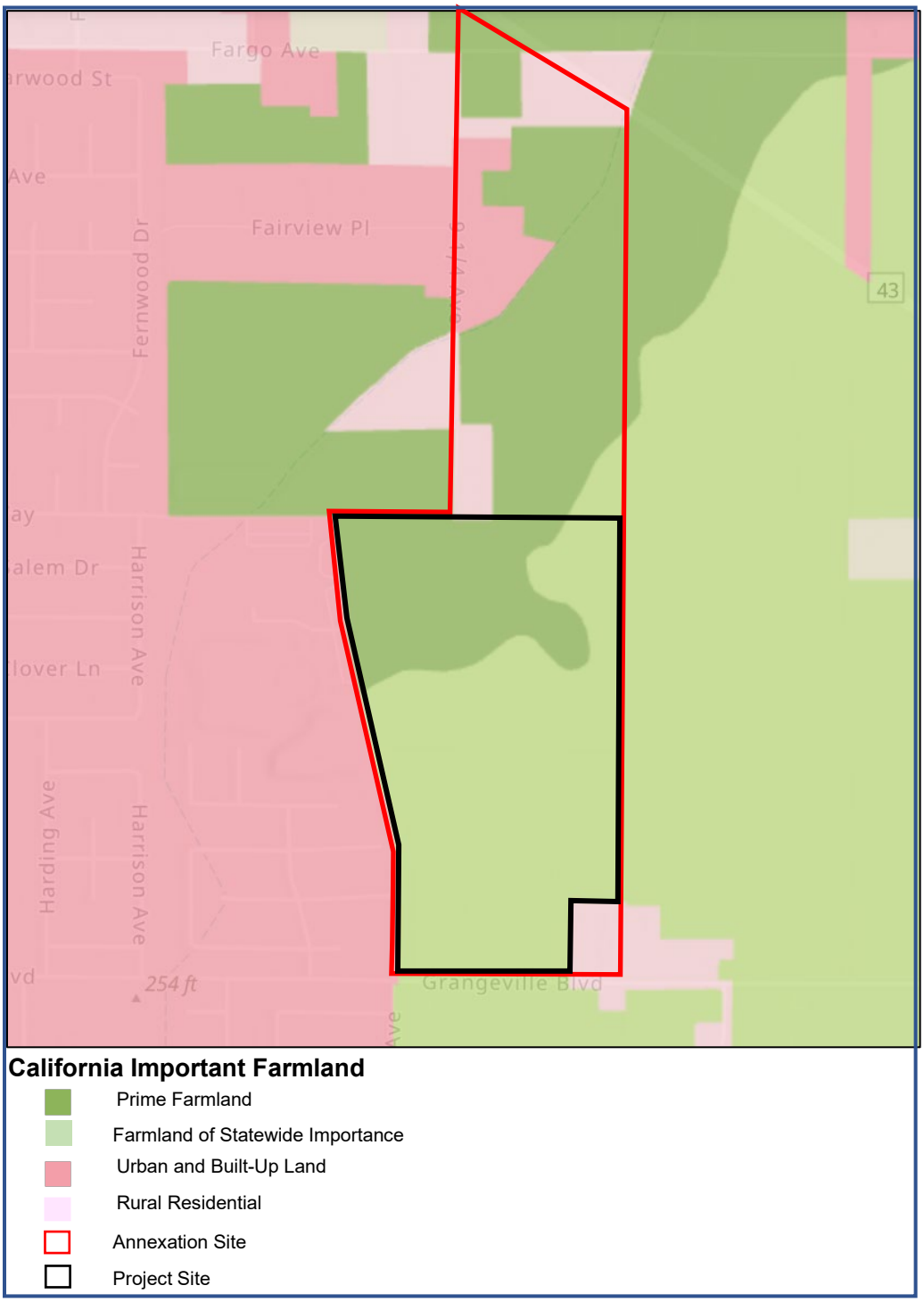
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☑	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)?	☐	☐	☐	☑
d) Result in the loss of forestland or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☑	☐

Environmental Setting

The proposed Project Site is currently planted with a nut crop on approximately one-half the northern portion of

the site and fallow on the southern portion. . According to the Department of Conservation, the Project Site contains approximately 23 acres of Prime Farmland and approximately 55 acres of Farmland of Statewide Importance, as shown in Figure 8.

Figure 8 Important Farmland Map



Source: Department of Conservation; DLRP Important Farmland Finder

Discussion

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The Project Site is located on land that will be annexed into the City of Hanford with Project approval. The proposed development of the Project Site will convert approximately 78.16 acres of Prime Farmland and Farmland of Statewide Importance. The north portion of the Annexation Area is not anticipated to change in use as a result of the Project as no development is proposed.

The Project Site and the Annexation Area are planned for urban development in the Hanford 2035 General Plan. The 2035 General Plan EIR (State Clearinghouse No. 2015041024) evaluated the impacts of agricultural land conversion and determined that approximately 2,706 acres of Prime, Farmland of Statewide Importance and Unique Farmland would be converted with full build out of the General Plan during the 2014-2035 planning period. The 2035 General Plan EIR analysis included the Project Site and the full Annexation Area.

The General Plan includes goals and policies that recognize the importance of farmland to the City, County and State. The General Plan policies were developed to prevent premature conversion of agricultural land and to preserve agricultural land through means other than mitigation. Those policies include the requirement for buffers, the establishment of several planning areas that promote increased densities to increase capacity within the 2035 Growth Boundary, a right to farm ordinance, and the creation of a farmland mitigation program. The establishment of the 2035 Growth Boundary itself is a limiting factor to growth and premature conversion of agricultural lands. The Goals and Policies area as follows:

Agricultural Resources Goal

Goal O1: *Conservation and long term protection of agricultural resources and soils located outside of the Planned Area Boundary.*

5.2.1 Agricultural Land Protection

Policy O1 Boundary between Urban and Agricultural Uses

Utilize the Planned Area Boundary as the long term boundary line between urban uses and agricultural uses and prohibit non-agricultural development outside the Planned Area Boundary.

Policy O2 Agricultural Buffer

Coordinate land use policies and designations with Kings County to provide for a buffer between the urban area of Hanford and the surrounding unincorporated communities.

Policy O3 Kings County Preservation Efforts

Support the Kings County efforts to preserve and protect farmlands outside the Planned Area Boundary.

Policy O4 Interim Agricultural Use

Retain existing agricultural areas as an interim use inside the Planned Area Boundary and support agricultural operations until such time that the areas are needed for logical urban expansion

Policy O5 Farmland Mitigation Program

In collaboration with the County of Kings and other cities in Kings County, determine the feasibility and, if feasible, consider adoption of a countywide farmland mitigation program that is tailored to the needs and goals of the Kings County agricultural region to mitigate the urban conversion of agricultural lands that are outside adopted urban growth boundaries.

Policy E26 Protection of Agricultural Lands from Urban Encroachment
Utilize the Planned Area Boundary to delineate a long term boundary between agricultural and urban land uses, and strongly support long term agricultural operations outside the Planned Area Boundary that can be free from the threat of urban land use encroachment.

3.14 New Growth Planning Areas
Four new growth areas have been established in areas that are predominantly undeveloped and currently used for agriculture. This section provides policies and actions to ensure balanced growth in these areas with adequate public facilities and services, and strategies for quality design.
This goal and its supporting policies encourage development within Hanford's Planning Areas. Development within Hanford's Planning Areas will decrease dependency on the automobile and allow more people to walk, bike, or take transit for daily trips. Hanford's Planning Areas are intended to accommodate and encourage new growth within compact, walkable neighborhoods that are located near schools, parks, shopping, and transit facilities.

3.14.1 Eastside Planning Area
The Eastside Planning Area is primarily located east of 9 ¼ Avenue, north of the Union Pacific Railroad, and west and south of State Route 43. Grangeville Boulevard is a major arterial that is an eastern gateway to Hanford from State Route 43. Much of the land is currently being farmed and portions of the Planning Area is subject to Williamson Act contract.

Policy L154 Eastside Growth Limitation
Approve new development project in the Eastside Planning Area only within the 2035 Development Boundary until such time as the boundary is expanded in accordance with General Plan policies.

Policy L155 Eastside Higher Density Residential Uses
Support the development of higher density residential uses in close proximity to the Grangeville Boulevard corridor and the gradual transition to lower density, single-family residential uses as distance from the Arterial road increases.

Policy L156 Eastside Development along Grangeville Boulevard
Discourage "strip" development along Grangeville Boulevard from an overall community development perspective. Develop design policies and regulations that identify a minimum percentage of street-facing building facades and minimize the exposure of parking and masonry walls along the street.

The Project is located within the Eastside Planning Area. The development of the Project Site is in conformance with the Eastside Planning area policies by providing increased residential density. The Project includes a request to increase general plan density from low density to medium density and transitions from higher densities close to Grangeville Boulevard to lower densities to the north.

In accordance with the General Plan, the Project would be required to adhere to the Hanford Municipal Code 16.40.110 Right to Farm Ordinance and proposed goals and policies of the general plan related to agriculture.

In the 2035 General Plan Update EIR (SCH No. 2015041024), it was determined that the loss of farmland was a significant and avoidable impact. A Statement of Overriding Considerations was adopted for the significant and avoidable impacts resulting from the conversation of agricultural land. With the implementation of the General Plan policies, the right to farm ordinance and the planned conversion of agricultural lands evaluated in the General Plan EIR, no new impacts resulting from the conversation of agricultural land are anticipated to occur, therefore impacts are considered to be ***less than significant.***

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act Contract?

The Project would result in the conversion of approximately 46.62 acres of farmland currently under Williamson Act Contract into a residential subdivision. Williamson Act Contract 552-86 was formed in 1986. Also in 1986, the City of Hanford protested the formation of the contract based on the property being within one mile of the City limits. The Kings LAFCo approved Resolution 8614 recognizing the City's protest in 1986. Pursuant to State law, the City would exercise its right to not succeed to the Williamson Act Contract, terminating the contract in the event the annexation associated with the Project is completed. A certificate of cancellation will be recorded with the Kings County Recorders Office.

In addition, as stated in (a) above, the City of Hanford anticipated the conversion of the subject property to urban use in the General Plan Update and EIR for which a Statement of Overriding Considerations was adopted. The proposed Project falls within the analysis provided with the General Plan EIR and the City's protest of the formation of the contract anticipated that the area would be subject to development, therefore no mitigation would be necessary as a result of the conflict with an existing Williamson Act contract; as such impacts are considered to be ***less than significant***.

Mitigation Measures: None Required

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)?

The Project Site is not zoned for forest or timberland production and is not adjacent to any forest land, therefore, there is ***no impact***.

Mitigation Measures: None Required

d) Would the project result in the loss of forestland or conversion of forest land to non-forest use?

The site does not contain forestland and is not adjacent or in proximity to any forestland or use, therefore there is ***no impact***.

Mitigation Measures: None Required

e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?

The City of Hanford and the Kings LAFCo required the inclusion of the area north of the Project Site in the annexation. Although no changes are proposed to this area as a result of the Project, it could result in the additional conversion of farmland, specifically approximately 44.24 acres of Prime Farmland and Farmland of Statewide Importance. The additional acres are designated for urban development and agricultural conversion impacts in the City of Hanford Planning Area were assessed in the General Plan EIR for the planning period of 2014-2035. Impacts were considered to be significant and unavoidable and a statement of overriding considerations was adopted. Conversion of the area from farmland will also be subject to CEQA if developed to ensure compliance with the General Plan policies and Municipal Code. The Project would not result in conversion of forestland to non-forest use, therefore impacts would be considered ***less than significant.***

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin (SJVAB) and in Kings County. The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. The air basin is bordered by the Sierra Nevada Mountains to the east, Coastal Range to the west and the Tehachapi Mountains to the south. These topographical features directly relate to air quality within the SJVAB. Air quality is described in relation to air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth.

According to the Hanford Air Quality Element regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The combination of topography and inversion layers generally prevents dispersion of air pollutants.

The Project Site is located within the SJVAB, which is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), Ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$) and lead (Pb). Air quality plans or attainment plans are used to bring an air basin into attainment with State and Federal ambient air quality standards. Table 3-1 describes the areas classified as either in attainment or non-attainment for several pollutant standards.

Table 3-1 San Joaquin Valley Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – One hour	No Federal Standard	Nonattainment/Severe
Ozone – Eight hour	Nonattainment/Extreme	Nonattainment
PM 10	Attainment	Nonattainment
PM 2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD

Regulations

Federal Clean Air Act – The 1977 Federal Clean Air Act (CAA) authorized the establishment of the National Ambient Air Quality Standards (NAAQS) and set deadlines for their attainment. The Clean Air Act identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to meet interim milestones. The U.S. EPA is the federal agency charged with administering the Act and other air quality - related legislation. EPA's principal functions include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations.

California Clean Air Act – California Air Resources Board coordinates and oversees both state and federal air pollution control programs in California. As part of this responsibility, California Air Resources Board monitors existing air quality, establishes California Ambient Air Quality Standards, and limits allowable emissions from vehicular sources. Regulatory authority within established air basins is provided by air pollution control and management districts. The Project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The state and federal standards for the criteria pollutants are presented in Section 8.4 of The San Joaquin Valley Unified Air Pollution Control District's 2015 "Guidance for Assessing and Mitigating Air Quality Impacts". These standards are designed to protect public health and welfare. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soils, water, visibility, materials, vegetation and other aspects of general welfare.

San Joaquin Valley Air Pollution Control District (SJVAPCD) – The SJVAPCD is responsible for enforcing air quality standards in the Project area. To meet state and federal air quality objectives, the SJVAPCD adopted the following thresholds of significance for projects and ambient air quality standards, Tables 3-2 and 3-3.:

Table 3-2 SJVAPCD Thresholds of Significance

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	Emissions (tpy)	Emissions (tpy)
CO	100	100	100
Nox	10	10	10
ROG	10	10	10
SOx	27	27	27
PM10	15	15	15
PM2.5	15	15	15

Source: SJVAPCD Guidance for Assessing and Mitigation Air Quality Impacts

Table 3-3 California Ambient Air Quality Standards

Pollutant	Averaging Time	Concentration
Ozone	8 Hour	0.070 ppm (137 µg/m^3)
	1 Hour	0.09 ppm (180 µg/m^3)
Carbon Monoxide	8 Hour	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)
Nitrogen Dioxide	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)
	1 Hour	0.18 ppm (339 µg/m^3)
Sulfur Dioxide		
	24 Hour	0.04 ppm (105 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)
PM 10	Annual Arithmetic Mean	20 µg/m^3

	24 Hour	50 µg/m^3
PM 2.5	Annual Arithmetic Mean	12 µg/m^3
	24 Hour	none
Sulfates	24 Hour	25 µg/m^3
Lead		
	30 Day Average	1.5 µg/m^3
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)
Visibility Reducing particles	8 Hour	(see below[b])

ppm=parts per million
mg/m^3=milligrams per cubic meter
µg/m^3=micrograms per cubic meter
[a]See http://www.arb.ca.gov/research/aaqs/aaqs2.pdf
[b]In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
Source: SJVAPCD "Ambient Air Quality Standards & Attainment Status" website

The following SJVAPCD rules and regulations may apply to the proposed Project; however, this is not an exhaustive list:

- **Rule 3135:** Dust Control Plan Fee. All projects which include construction, demolition, excavation, extraction, and/or other earth moving activities as defined by Regulation VIII(Described below) are required to submit a Dust Control Plan and required fees to mitigate impacts related to dust.
- **Rule 4101:** Visible Emissions. District Rule 4101 prohibits visible emissions of air contaminants that are dark in color and/or have the potential to obstruct visibility.
- **Rule 9510:** Indirect Source Review (ISR). This rule reduces the impact PM10 and NOX emissions from growth on the SJVB. This rule places application and emission reduction requirements on applicable development projects in order to reduce emissions through onsite mitigation, offsite SJVAPCD administered projects, or a combination of the two. This Project will submit an Air Impact Assessment (AIA) application in accordance with Rule 9510's requirements.

- **Regulation VIII:** Fugitive PM10 Prohibitions. Regulation VIII is composed of eight rules which together aim to limit PM10 emissions by reducing fugitive dust. These rules contain required management practices to limit PM10 emissions during construction, demolition, excavation, extraction, and/or other earth moving activities.

Discussion

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

An Air Quality and Greenhouse Gas Impact Memo (Memo) was prepared by Padre and Associates, March 2025, attached as Appendix B. The emissions were estimated using the most recent emission factors and load factors obtained from the California Emissions Estimator Model® (CalEEMod) User's Guide, Emission Factors (EMFAC) model. The Memo is focused only on the development of the Site, the additional Annexation Area was not included as no development is proposed for the additional annexation area.

If a project were to generate criteria pollutants below significance thresholds adopted by the SJVAPCD listed in Table 3-2 above, the Project would be considered to result in a less than significant impact and in compliance with adopted SJVAPCD rules and regulations.

Estimates for both construction and operational emissions, based on the development of 658 housing units and a commercial shopping center with two fast food restaurants, two general retail stores, and one gasoline/diesel fueling station with an associated mini mart, were evaluated in the Air Quality and Greenhouse Gas Memo as shown in Table 3-4 and 3-5 below. The residential unit count was decreased to 650 after the completion of the modeling, but will not significantly change the impacts to air quality.

Table 3-4 Estimated Construction Criteria Pollutant Emissions

Phase	NOx	ROG	PM10	PM2.5	CO	SO2
Residential Phase 1	0.533	0.055	2.8	0.454	1.42	0.006
Residential Phase 2	0.533	0.055	2.8	0.454	1.42	0.006
Residential Phase 3	0.533	0.055	2.8	0.454	1.42	0.006
Residential Phase 4	0.533	0.055	2.8	0.454	1.42	0.006
Commercial Year 1	0.158	0.015	0.589	0.145	0.532	0.002
Commercial Year 2	0.158	0.015	0.589	0.145	0.532	0.002
Commercial Year 3	0.158	0.015	0.589	0.145	0.532	0.002
SJVAPCD Significance Threshold (tpy)	**10**	**10**	**15**	**15**	**100**	**27**
Exceeds Thresholds?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Units shown in Tons per Year (tpy)

Table 3-5 Estimated Operational Criteria Pollutant Emissions

Phase	NOx	ROG	PM10	PM2.5	CO	SO2
Residential Operational Emissions	0.722	0.221	8.9	2.25	17.6	0.055
Commercial Operational Emissions	0.600	0.267	4.24	1.08	14.4	0.033
Total Operational Emissions	**1.322**	**0.488**	**13.14**	**3.33**	**32**	**0.088**
SJVAPCD Significance Threshold	**10**	**10**	**15**	**15**	**100**	**27**
Exceeds Thresholds?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: Padre and Associates Memorandum, Appendix A
Units shown in Tons per Year (tpy)

As shown above, the Project's short-term (construction) and long-term (operational) emissions are below SJVAPCD thresholds. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. The impact of the Project would be **less than significant.**

Mitigation Measures: None Required

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Based on the Project construction schedule (i.e., four years of residential construction followed by three years of commercial construction), criteria pollutant emissions for the Project were estimated to be well below the SJVAPCD significance thresholds (refer to Table 3-4 above). Operational Emissions were also estimated to be well below the SJVAPCD thresholds as shown in Table 3-5.

The primary sources of particulate matter of 10 microns in diameter or less (PM10) and particulate matter 2.5 microns or less (PM2.5) emissions were fugitive dust from temporary grading activities and vehicles traveling on paved roads. Diesel particulate matter (DPM) from the use of onsite diesel-powered equipment was estimated to be less than 0.002 tons per year for both residential and commercial construction phases. Full emissions estimate tables are provided as an attachment in Appendix B.

The SJVAB is designated as non-attainment for O3 and PM2.5 for federal standards and nonattainment for O3, PM10, and PM2.5 for State standards. SJVAPCD nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SJVAPCD considered the emission levels

for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Since the basin is in non-attainment for ozone, PM10 and PM2.5, it is considered to have an existing significant cumulative health impact without the project. When this occurs, the analysis considered whether the project's contribution to the existing violation of air quality standards is cumulatively considerable. The SJVAPCD regional thresholds for Nox, VOC, PM10 and PM2.5 are applied as cumulative contribution thresholds. Projects that exceed the regional thresholds in Table 3-2 would be considered to have a cumulative health impact. As shown in Tables 3-4 and 3-5 the Projects construction and operational emissions would not exceed SJVAPCD thresholds, impacts are considered to be **less than significant.**

Mitigation Measures: None Required

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Using the Project construction and operational emissions estimates, Padre completed a health risk prioritization screening of the Project's residential and commercial construction and operational phase DPM emissions using the SJVAPCD's Prioritization Calculator. The Prioritization Calculator utilizes toxic profiles based on Assembly Bill (AB) 2588 Hotspots Air Toxic Profiles and estimated Project emissions to calculate a prioritization score between 0 and 100 for cancer risk, acute toxicity risk, and chronic toxicity risk.

In accordance with the Air Toxics Hot Spots Program, Facility Prioritization Guidelines and SJVAPCD APR-1906 Framework for Performing Health Risk Assessments, a facility or project with a prioritization score between 0 and less than 10 would not be required to perform a Health Risk Assessments (HRA) and would have a less than significant impact.

The nearest sensitive receptors to the Project Site consist of single-family residential homes on adjacent properties within 0 to 100 meters to the west and south of the Project Site, and the adjacent Hamilton Elementary School and Freedom Park. In addition, the screening also considers the newly constructed residential developments as sensitive receptors after each phase of residential construction has been completed. The prioritization screening evaluated the impacts to receptors for the estimated onsite Project DPM emissions associated with the construction phases and onsite DPM emissions associated with the operational phases. The table below summarizes the maximum prioritization scores for all years of construction and the full operational phase on completion of construction.

Table 3-5. Results of Prioritization Screening

Phase	Receptor Proximity				
	0 to 100 (m)	100 to 250 (m)	250 to 500 (m)	500 to 1,000 (m)	1,000 to 1,500 (m)
Residential Construction Year 1	8.32	2.08	0.333	0.091	0.025
Residential Construction Year 2	8.87	2.22	0.355	0.098	0.027

Residential Construction Year 3	9.42	2.36	0.377	0.104	0.028
Residential Construction Year 4	9.98	2.49	0.399	0.110	0.030
Residential Operational Only	2.22	0.55	0.089	0.024	0.007
Commercial Construction Year 1	8.64	2.16	0.346	0.095	0.026
Commercial Construction Year 2	9.10	2.28	0.364	0.100	0.027
Commercial Construction Year 3	9.56	2.39	0.383	0.105	0.029
Residential and Commercial Operational Only	6.95	1.74	0.278	0.076	0.021

Prioritization scores are less than 10, therefore an HRA would not be required by the SJVAPCD and impacts are considered ***less than significant.***

Mitigation Measures: None Required

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The Project will create temporary localized odors during Project construction, such as odors from diesel-powered equipment and vehicles. These odors will be temporary and would most likely not occur over an extended period of time or concentrated in one location on the Project Site.

The proposed Project uses are not anticipated to create or emit objectionable odors that would affect a substantial number of people; therefore impacts are considered to be **less than significant.**

Mitigation Measures: None Required

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Game or U.S. fish and Wildlife Service?	☐	☑	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Environmental Setting

The Project Site is currently comprised of fallow agricultural land on the southern half and nut trees on the northern portion. The site does not contain any buildings. The fallow portion of the Project Site had previously been farmed, but has been out of agricultural production for many years. The entire site has been highly disturbed as a result of periodic grading and discing as part of normal agricultural practices and for weed control since agricultural practices have ceased. The site will continue to be disced for weed and fire control until fully developed.

Discussion

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local

or regional plans, policies, or regulations, or by the California Department of Fish & Wildlife or U.S. Fish and Wildlife Service?

A Biological Evaluation (BE) was completed by Live Oak Associates (2024, see Appendix B), which included an on-site survey on November 4, 2024. The BE only evaluated the potential impacts to the Project Site, no changes to uses north of the Project Site (expanded Annexation Area) will occur, therefore were not evaluated. The BE is the basis of analysis for the analysis presented in this section.

Sources of information for the BE included the Information for Planning and Consultation (IPaC) system (USFWS 2024), California Natural Diversity Data Base (CDFW 2024), *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), and manuals, reports, and references related to plants and animals of the Project vicinity. A complete list and references are found in the BE.

The California Natural Diversity Data Base (CNDDB) search indicated 10 special status plants and 13 animals have been documented in the general vicinity of the Project site or are known to occur regionally. Of these, 19 are considered absent from or unlikely to occur on the site due to the absence of suitable habitat, the site's urban setting and other landscape factors, and/or the site's being situated outside of the species' known distribution. A list of the species, habit and likeliness to occur is found in Table 4-1 below. Because these species have no appreciable potential to occur on site, they are not expected to be affected by the Project, directly or indirectly. Project impacts to these species are considered less than significant.

Table 4-1 LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Species	Status	Habitat	*Occurrence within the Project Site
California Native Plant Society (CNPS) Species			
Heartscale (*Atriplex cordulata var. cordulata*)	CRPR 1B.2	Occurs on saline or alkaline soils in chenopod scrub, meadows, seeps, and grasslands; blooms April-October; elevations below 1,230 ft.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Earlimart Orache (*Atriplex cordulata var. erecticaulis*)	CRPR 1B.2	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Brittlescale (*Atriplex depressa*)	CRPR 1B.2	Occurs in chenopod scrub, valley and foothill grassland, meadows and seeps, playas, and vernal pools. It is rarely found	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.

		in riparian or marsh habitats. Blooms April-October; elevations below 1,050 ft.	
Lesser Saltscale (*Atriplex minuscula*)	CRPR 1B.1	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Subtle Orache (*Atriplex subtilis*)	CRPR 1B.2	Occurs in alkaline vernal pools; blooms July-Oct.; elevations below 400 ft.	**Absent.** Vernal pool habitat is absent from the Project site.
Recurved Larkspur (*Delphinium recurvatum*)	CRPR 1B.2	Occurs in alkaline soils of cismontane woodland and valley and foothill grasslands in elevations 100 – 2,000 feet. Blooms March-June.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Alkali-Sink Goldfields (*Lasthenia chrysantha*)	CRPR 1B.1	Occurs in valley grassland, alkali sink, wetland riparian areas less than 328 ft. in elevation in the southern Sacramento Valley and San Joaquin Valley. Blooms February – June.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Mud Nama (*Nama stenocarpa*)	CRPR 2B.2	Occurs in intermittently wet areas such as lake shores and river banks. Occurs sparingly in the Central Valley and more frequently in Southern California from sea level to below 1,640 feet. Blooms January-July.	**Absent.** Intermittently wet areas needed for the proliferation of this species are absent on the Project site.
California Alkali Grass (*Puccinellia simplex*)	CRPR 1B.2	Occurs in alkali sinks and flats within grassland and chenopod scrub habitats of the Central	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.

		Valley, San Francisco Bay area and western Mojave Desert; elevations below 3,000 feet. Blooms March-May.	
Sanford's Arrowhead (*Sagittaria sanfordii*)	CRPR 1B.2	Occurs in freshwater emergent marsh habitat in drainage ditches and canals of California's Central Valley. Blooms May to October.	**Absent.** Aquatic habitat needed to support this species is absent from the Project site.
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act			
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Suitable habitat in the form of vernal pools is absent from the site and immediately surrounding lands.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Vernal pools of clear to turbid waters of the Central Valley measuring 54 sq.ft. to larger pools (largest known to be 89-acre Olcott Lake).	**Absent.** Suitable habitat in the form of vernal pools is absent from the site and immediately surrounding lands.
California Tiger Salamander-Central California DPS (*Ambystoma californiense*)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. Although most CTS aestivate within 0.4 mile of their breeding pond, outliers may aestivate up to 1.3 miles away (Orloff 2011).	**Absent.** The Project site is situated in a matrix of urban and intensive agricultural lands within which this species would not have been able to persist. **The** nearest block of contiguous grassland is located more than 6 miles east of the site along Cross Creek. The closest CNDDB occurrence is over 8 miles northeast of the Project site; it refers to an observation made sometime prior to 1925, from a population that is now considered extirpated (CDFW 2024).
Western Spadefoot (*Spea hammondii*)	FPT, CSC	Occurs in grasslands of San Joaquin Valley, where it breeds in	**Absent.** The Project site is situated in a matrix of urban and intensive agricultural lands

		vernal pools or other seasonal wetlands and aestivates in underground refugia such as rodent burrows. Baumberger et al. (2019) recorded a maximum distance of around 890 feet between breeding and aestivation sites.	within which this species would not have been able to persist. Although the basins to the west and northwest of the site may theoretically be suitable for spadefoot reproduction, they were constructed between 2003 and 2010, after the surrounding landscape was converted to unsuitable uses. The nearest block of contiguous grassland is located more than 6 miles east of the site along Cross Creek; that is also where the nearest CNDDB occurrences of this species are (CDFW 2024).
Northwestern Pond Turtle (*Actinemys marmorata*)	FPT, CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires partially submerged rocks or logs for basking sites. Nesting takes place in open areas, on a variety of soil types, and up to ¼ mile away from water. Overwintering and summertime aestivation includes use of upland habitat, generally with leaf litter or other loose substrate for burying themselves.	**Unlikely**. The Project site consists entirely of intensive agricultural lands that lack aquatic features and offer little to no upland habitat value for this species; the latter is limited to marginal nesting opportunity in the site's disked field. Two aquatic features within ¼ mile of the site are potentially suitable for pond turtles: the ponding basin to the west and the East Branch Peoples Ditch to the northwest. Even if pond turtles occupy these features, however, they are unlikely to travel to the site for nesting. The ponding basin is completely enclosed by a chainlink fence, which would prevent this species from migrating to the Project site. The East Branch Peoples Ditch is located more than 0.3 mile from the site's disked field, the one area of the site that could theoretically support nesting by this species. Furthermore, there are no nearby iNaturalist records (iNaturalist 2024) and the closest CNDDB occurrence is

			approximately 9.5 miles south of the Project site (CDFW 2024). For these reasons, northwestern pond turtles are unlikely to be found on the Project site.
Blunt-Nosed Leopard Lizard (*Gambelia sila*)	FE, CE, FP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to southern Merced County.	**Absent**. Agricultural and urban development has eliminated any potential habitat from the Project site and surrounding area. There are no CNDDB occurrences within the vicinity of the Project site (CDFW 2024).
Tricolored Blackbird (*Agelaius tricolor*)	CT, CSC	Breeds colonially near fresh water in dense bulrush, cattails, thickets of willows or shrubs, and increasingly in wheat or triticale fields. Forages in grassland and cropland areas.	**Possible.** Tricolored blackbirds are not commonly documented in the Project vicinity. There is one eBird occurrence within 5 miles of the site, documented approximately 3.5 miles to the northeast in 2002. The closest CNDDB occurrence is approximately 10 miles south of the site, recorded in 2000. Nevertheless, this species has some potential to occur on site. The site's agricultural field is suitable for foraging, and may provide nesting habitat for this species if it is rotated to wheat or another suitable grain crop
Burrowing Owl (*Athene cunicularia*)	CC, CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Unlikely.** The Project site does not contain suitable habitat for burrowing owls and is situated within a matrix of intensive agricultural and urban uses generally incompatible with this species' ecology. There are only two eBird sightings of burrowing owl within 10 miles of the Project site, and the closest known CNDDB occurrence is located approximately 6.5 miles

			northeast of the Project site in the grasslands along Cross Creek, documented in 2017 (CDFW 2024).
Swainson's Hawk (*Buteo swainsoni*)	CT	This breeding migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations	**Possible.** The Project site contains foraging habitat in the form of a disked field, but does not contain nesting habitat for the Swainson's hawk. Swainson's hawks do have the potential to nest in the mature trees within the immediate Project vicinity. They are well-documented in the area; there are 20 CNDDB nesting occurrences within 10 miles of the site, with the closest located just 1.5 mile to the southeast (CDFW 2024), and over 50 eBird sightings within a 10-mile radius as well (eBird 2024).
Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits valley saltbrush scrub, valley sink scrub, and grassland habitats located from the Valley floor to 300 ft. in elevation.	**Absent.** Suitable habitat is absent from the Project site, and the site is situated in a matrix of intensive agricultural and urban uses within which this species would not have been able to persist. There are no CNDDB occurrences in the vicinity (CDFW 2024).
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Desert alkali scrub, annual grasslands of California's San Joaquin Valley and Tulare Basin, extending west into San Luis Obispo County. This species may forage in adjacent agricultural fields.	**Unlikely.** This species was historically known from the Project vicinity. There are 13 CNDDB occurrences within 10 miles of the Project site, including one occurrence just 0.75 mile from Project boundaries; however, all but two of these are from the 1970s, with the remaining records from 2000 and 2006. The Project site is situated in a matrix of urban and intensive agricultural land uses generally

			incompatible with kit fox ecology, and the site itself consists of a highly-managed orchard and agricultural field, neither of which are likely to attract individuals of this species. These factors, combined with the lack of modern sightings, suggest a very low probably of kit fox occurrence on site.
Loggerhead Shrike (*Lanius ludovicianus*)	CSC	Found in a variety of arid habitats Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Possible.** This species is known from the vicinity. There are five eBird sightings within 5 miles of the Project site; the closest of these was recorded just ½ mile north of Project boundaries in 2021. Loggerhead shrikes could forage over the site's agricultural field and the walnut orchard could potentially be used for nesting by this species.
Western Mastiff Bat (*Eumops perotis californicus*)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Is known to forage over long distances, flying up to 15 miles a night. Roosts in cliff faces, high buildings, and tunnels.	**Possible.** The Project site does not contain roosting habitat for this species. Though generally uncommon within the Central Valley, this species may occasionally forage over the site.

OCCURRENCE DESIGNATIONS AND STATAUS CODES

Present: Species observed on the site at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the site, but it could occur there from time to time.
Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
Absent: Species not observed on the Site and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPT	Federally Proposed Threatened	CSC	California Species of Special Concern

FC	Federal Candidate	CFP	California Fully Protected
		CC	California Candidate for Listing

CRPR CODES

1A	Plants Presumed Extinct in California	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

The site's agricultural field could support nesting by ground-or vegetation nesting birds such as the mourning dove, western meadowlark (*Sturnella neglecta*), and (when planted to a suitable grain such as wheat or triticale), the red-winged blackbird (*Agelaius phoenecius*) and possibly even the California Threatened tricolored blackbird (*Agelaius tricolor*). The site's orchard trees have the potential to be used for nesting by a variety of migratory birds, possibly including the loggerhead shrike (*Lanius ludovicianus*), a California Species of Concern. Larger trees in the immediate Project vicinity have the potential to support nesting raptors, possibly including the Swainson's hawk (*Buteo swainsoni*), a California Threatened species. Nearly all birds are protected by state and federal law. If Project construction takes place during the nesting season, birds nesting on site could be injured or killed by construction activities, while birds nesting near the site could be disturbed such that they would abandon their nests. Construction-related mortality of nesting birds and disturbance leading to nest abandonment would violate state and federal laws and constitute a significant impact of the Project. Tricolored blackbirds, Swainson's hawks, and loggerhead shrikes are not expected to be adversely affected by Project-related loss of habitat. The site does not offer unique habitat for any of these species, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality habitats are abundant in the Project vicinity and elsewhere in the region. Project-related loss of habitat for these species is considered a less than significant impact under CEQA.

One special status animal species, the western mastiff bat (*Eumops perotis ssp. californicus*), has the potential to pass through or forage on the site from time to time but would not roost on or near enough to the site that they could be vulnerable to construction-related disturbance or reproductive failure. Individuals of this species are unlikely to be injured or killed by construction activities because they are highly mobile while foraging and would be expected to simply avoid active work areas.

The Project would not adversely affect this species through loss of foraging habitat. The site does not offer unique foraging habitat for the western mastiff bat, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality foraging habitats are abundant in the Project vicinity and elsewhere in the region.

Implementation of the following mitigation measures will reduce potential Project impacts to nesting birds and raptors, including the tricolored blackbird, loggerhead shrike, and Swainson's hawk, to a less than significant level under CEQA and facilitate compliance with state and federal laws protecting these species.

Mitigation Measure BIO 1 (Construction Timing). If feasible, future construction activities will take place entirely outside of the avian nesting season, defined as February 1 to August 31.

Mitigation Measure BIO 2 (Preconstruction Surveys). If construction must occur between February 1 and August 31, a qualified biologist shall conduct surveys for active bird nests within 7 days prior to the start of work during this period. The survey area shall encompass the site and accessible surrounding lands within ¼ mile for nesting Swainson's hawks, 500 feet for other nesting raptors, 300 feet for the tricolored blackbird, and 250 feet for other nesting birds.

Mitigation Measure BIO 3 (Avoidance of Active Nests). Should any active nests be discovered in or near proposed construction zones, the biologist shall identify a suitable construction-free buffer around the nest. This buffer shall be identified on the ground with flagging or fencing and shall be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Therefore impacts are considered ***less than significant with mitigation***.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?

There is no riparian habitat or other sensitive natural community on site or adjacent to the Project. Therefore, there is ***no impact.***

Mitigation Measures: None Required

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No water or other hydrologic features occur within the Project Site. The East Branch People Ditch does cross the expanded Annexation Area, however there are no changes to the physical environment within the expanded Annexation Area that would result in impacts to the ditch. As such, there are no impacts to state or federally protected wetlands. There is ***no impact.***

Mitigation Measures: None Required

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

As stated in the BE, the Project Site did not contain wildlife movement corridors, sensitive natural communities, designated critical habitat, or state or federally protected waters or wetlands. The East Branch People Ditch does cross the expanded Annexation Area and has the potential to be used by wildlife. As stated in Item (c) above, there are no changes to the physical environment within the expanded Annexation Area that would result in impacts to the ditch. Therefore, the Project will have ***no impact***.

Mitigation Measures: None Required

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree

preservation policy or ordinance?

The City has a Tree Ordinance to protect heritage trees. A heritage tree is defined as "(1) any Oak Tree native to Central California, Valley Oak Tree (*Quercus lobata*), with a diameter greater than 10 inches; or (2) any tree or a group of trees specifically designated by the city council for protection because of its historical significance, special character or community benefit." The Project Site and the expanded Annexation Area do not contain any Valley Oak Trees or trees that have been designated as protected by the City Council. The proposed Project will comply with City of Hanford policies and ordinances, therefore there is ***no impact.***

Mitigation Measures: None Required

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The proposed Project is not located within the boundaries of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional or state habitat conservation plan. There is ***no impact.***

Mitigation Measures: None Required

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

Environmental Setting

Cultural Resources are defined as prehistoric or historical archaeological sites as well as historical objects, buildings, or structures. In accordance with 36 Code of Federal Regulations (CFR) §60.4, "historical" in this report applies to cultural resources which are at least 50 years old. The significance or importance of a cultural resource is dependent upon whether the resource qualifies for inclusion at the local level in a local register of historical resources, at the state level in the California Register of Historical Resources (CRHR), or at the federal level in the National Register of Historic Places (NRHP). Cultural resources that are determined to be eligible for inclusion in the CRHR are called "historical resources" (California Code of Regulations [CCR] 15064.5[a]). Under this statue the determination of eligibility is partially based on the consideration of the criteria of significance as defined in 14 CCR 15064.5(a)(3). Cultural resources eligible for inclusion in the NRHP are deemed "historic properties".

A Cultural Resource Assessment was prepared by Taylored Archaeology for the proposed Project, see Appendix C. The assessment included a California Historical Resources Information System (CHRIS) record search by Southern San Joaquin Information Center (SSJIC) for the Project Site on October 14, 2024. According to the search results, three prior cultural resources studies were conducted within the Project area; KI-00103 is adjacent to the southern Project boundary along Grangeville Boulevard. No prehistoric resources were encountered during its pedestrian survey. KI-00238 and KI-00269 are archaeological desktop reviews with no associated surveys. In addition, three previous cultural resources studies were conducted within a 0.5-mile radius of the Project Site. The results of the records search indicate that no cultural resources were previously recorded within the Project boundary and 13 cultural resources were recorded within the 0.5-mile search radius. The 13 cultural resources are all historic-era, and do not overlap the Project boundary.

In addition to the records search, Taylored Archaeology conducted an on-site pedestrian survey of the site on October 19, 2024. The results of the pedestrian survey indicate that the Project boundary consists of agricultural fields with no noted development. The Project Site consists of an orchard in the northern half and tilled field in the southern half. Ground surface visibility was generally excellent (95 to 100 percent), though small portions of the ground surface were obscured by grass and weeds. Rodent burrows and any related soil piles were closely examined for lithic scatters and for indications of buried deposits.

No prehistoric or historic archaeological resources were identified during the pedestrian survey. The natural topography of the area has been altered by historical and modern agricultural practices and much of the land on the Project Site has been graded and plowed, which has caused additional disturbance to the soil. While past agricultural activities may have potentially destroyed or obscured ground surface evidence of archaeological resources within the Project boundary, intact archaeological resources related to prior occupation of the area may potentially exist below the ground surface.

Discussion

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

There are no known historical resources on or near the subject property that would be impacted by the proposed project, therefore there is ***no impact.***

Mitigation Measures: None Required

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

There are no known archaeological resources located within the Project area. Implementation of Mitigation Measure CUL-1 requires that if any remains are discovered, construction shall stop and appropriate authorities be notified. Authorities include the County Coroner and archaeologist and, if remains are determined to be pre-historic, the Native American Heritage Commission (NAHC) shall be consulted. Implementation of Mitigation Measures CUL 1 will ensure that impacts will be ***less than significant with mitigation incorporation***.

Mitigation Measure CUL-1: In the event of discovery of unidentified archaeological remains during development or ground disturbing activities in the Project area, all work shall be halted in immediate vicinity (within a 100-foot radius) until a qualified archaeologist can identify the discovery and assess its significance.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

There are no known human remains buried in the Project vicinity. If human remains are unearthed during development, there is a potential for a significant impact. The City and the Santa Rosa Rancheria Tachi Yokut Tribe have also agreed to a mitigation measure that requires the developer/owner to agree to a burial treatment plan prior to any ground disturbing activities. As such, implementation of Mitigation Measure CUL-2 and CUL 3 will ensure that impacts remain ***less than significant with mitigation incorporation***.

Mitigation Measure CUL 2: If human remains are uncovered during construction, work shall be halted, and the Kings County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and California Public Resources Code 5097.98 require that the coroner notify the Native American Heritage Commission (NAHC) within 24 hours of discovery. The NAHC will then identify the

Most Likely Descendent who will make recommendations regarding the treatment and disposition of the remains.

Mitigation Measure CUL 3 A burial Treatment Plan shall be entered into by the Project applicant/property owner prior to any ground disturbing activities.

VI. ENERGY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☑

Environmental Setting

Energy conservation requires consideration of energy implications in project decisions, including a discussion of the potential energy impacts with emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy resources. A project would be considered inefficient wasteful and unnecessary if it violated existing energy standards, had a negative effect on local and regional energy supplies and requirement for additional capacity, or had a negative effect on peak and base period demands for electricity and other energy forms.

The California Energy Commission updates the Building Energy Efficiency Standards (Title 24, Parts 6 and 11) every three years as part of the California Code of Regulations. The standards were established in 1978 in effort to reduce the state's energy consumption. The standards apply to new construction, and additions and alteration to residential and nonresidential buildings and related to various energy efficiencies including but not limited to ventilation, air conditioning, and lighting.

Pacific Gas and Electric provides gas and electrical service to the City of Hanford.

Regulations

The following list of regulations is not intended to be exhaustive of all regulations.

California Code of Regulations, Title 20: Title 20 of the California Code of Regulations establishes standards and requirements for appliance energy efficiency. The standards apply to a broad range of appliances sold in California.

California Code of Regulations, Title 24: Title 24 of the California Code of Regulations comprises the California Energy Code, a broad set of standards designed to address the energy efficiency of new and altered homes and commercial buildings. These standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. Title 24 requirements are enforced locally by the City of Hanford Building Department.

California Green Building Standards Code (CALGreen): CalGreen is a mandatory green building code that sets minimum environmental standards for new construction statewide on January 17, 2008. The code was voluntary until 2010, when compliance became mandatory. The most recent update went into effect January 1, 2023. Cal Green is a set of regulations that mandates sustainable building practices to reduce environmental impacts and promote energy and water efficiency in both residential and non-residential

construction. Key areas covered by Cal Green include energy efficiency, water efficiency, indoor air quality and use of sustainable materials.

Discussion

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The Project proposes the construction of 650 residential units and 5.45 acres of neighborhood mixed use commercial that will result in additional energy consumption, as evaluated below.

Construction

During Project construction there would be an increase in energy consumption related to worker trips and operation of construction equipment. This energy consumption will be short-term and temporary. There are not unusual Project characteristics or construction processes that would require use of equipment that will be more energy intensive than used for comparable activities. Construction will include site preparation, building construction, paving and architectural coatings. The primary source of energy for construction will be diesel and gasoline.

All equipment shall conform to current emission standards and related fuel efficiencies including applicable California Air Resources Board (CARB) regulations, California Code of Regulations (Title 13, Motor Vehicles) and Title 24 standards. Compliance with these regulations would ensure that short-term, temporary construction activities do not result in wasteful, inefficient or unnecessary consumption of energy resources.

Operations

Project operation involves the heating, cooling, use of equipment, and vehicle trips. Operation of the 650 residential homes would be required to comply with energy efficiency standards as dictated by State and federal regulations including Tite 24 energy efficiency requirements and adopted energy efficient standards by the California Energy Commission.

Therefore, the Project is expected to comply with all energy efficiency standards and requirements and will have a ***less than significant impact.***

Mitigation Measures: None Required

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

See discussion above. The proposed Project will not conflict with or obstruct any State or local plans for renewable energy or energy efficiency. The Project will be designed to meet Title 24 and CAL Green requirements. Compliance with these standards will be enforced by the City of Hanford Building Division, therefore there is ***no impact***.

Mitigation Measures: None Required.

VII. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☑	☐
ii) Strong seismic ground shaking?	☐	☐	☑	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct and indirect risks to life or property?	☐	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☑	☐	☐

Environmental Setting

According to the 2024 Kings County Multi-Jurisdictional Hazard Mitigation Plan no major fault systems are known to exist in Kings County. Minor surface rupture could occur in areas of minor faulting, which occur primarily in the southwestern part of the county. Ground shaking is the most likely damaging effect of an earthquake for Hanford. Shaking was felt in Hanford during the Coalinga earthquake with a magnitude of 6.4 in 1983. The San Andreas fault is located less than four miles west of the Kings County line. Another large known fault, the White Wolf fault, is located to the south near Bakersfield and produced a 7.7 magnitude earthquake in 1952. There have not been any damaging earthquakes greater than magnitude 6.0 recorded in Kings County in over 200 years, though several have been very close.

Soils in Hanford do not have significant liquefaction potential. Hanford is located in a stable geologic formation, so the effects of ground shaking on soil stability should be minimal.

There are four seismic zones in the United States ranging from I to IV; the higher the number, the higher the earthquake danger. All of California lies within Seismic Zone III or IV. Stronger construction standards for buildings in Zones III and IV have been adopted in the International Building Code. Most of Kings County, including Hanford, is in Zone III.

Discussion

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii. Strong seismic ground shaking?

iii. Seismic-related ground failure, including liquefaction?

iv. Landslides?

As stated above, the site is not located in an earthquake fault zone and no active faults have been mapped within the Project boundaries. The Project Site would be engineered to meet the California Building Code for Seismic Zone III. In addition, the proposed Project Site is generally flat and there are no hill slopes in the area. As such, impacts are considered **less than significant**.

Mitigation Measures: None Required

b) Would the project result in substantial soil erosion or the loss of topsoil?

Development of the Project will require typical site preparation activities such as grading and trenching that will result in the potential for short-term soil disturbance or erosion impacts. Construction would also involve the use of water for dust control that may cause further soil disturbance. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process and will be addressed through compliance with the State Water Resources Control Board (SWRCB), which requires new development to implement measures to minimize soil erosion related to construction.

Construction-related impacts related to erosion will be temporary and subject to best management practices (BMPs) required by Stormwater Pollution Prevention Plan (SWPPP), which are developed to prevent significant impacts related to erosion from construction. Because impacts related to erosion would be temporary and limited to construction, and because required BMPs would prevent significant impacts related to erosion the impacts from the proposed Project will be ***less than significant.***

Mitigation Measures: None Required

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateralspreading, subsidence, liquefaction or collapse?

According to the United States Department of Agriculture National Resource Conservation Service (NRCS) Web Soil Survey and soil descriptions soils associated with the Project Site, Kimberlina Fine Sandy Loam

(saline alkali, sandy substratum), are considered stable and have a low capacity for landslides, lateral spreading, subsidence, liquefaction or collapse. The Project does not involve a substantial grade change to the topography to the point that it would increase the risk of landslides, lateral spreading, subsidence, liquefaction or collapse, therefore Impacts are considered ***less than significant.***

Mitigation Measures: None Required

d) Would the project be located on expansive soils, as defined in Table 18-1-B of the Uniform BuildingCode (1994), creating substantial direct or indirect risks to life or property?

As stated in (c) above, the Project Site is located on Kimberlina Fine Sandy Loam, which is well draining with low runoff unless it contains a clay substratum, which the Project Site does not contain. As such, this soil type is not an expansive soil, therefore impacts are ***less than significant.***

Mitigation Measures: None Required

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The proposed Project will connect to the existing City wastewater infrastructure and would not require the use of septic tanks or alternative wastewater disposal systems, therefore there is ***no impact.***

Mitigation Measures: None Required

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Project Site does not have any known paleontological resources or unique geologic features. There is no evidence that cultural resources of any type (including historical, archaeological, paleontological, or unique geologic features) exist on the Project Site. Nevertheless, there is some possibility that a buried site may exist in the area and be obscured by vegetation, fill, or other historical activities. If archaeological resources, including paleontological resources, are discovered during construction, Mitigation Measures CUL 1 and CUL 2 shall be implemented, therefore reducing impacts to ***less than significant with mitigation.***

Mitigation Measures: Refer to CUL 1 and CUL 2

VIII. GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	☐	☐	☑	☐
a) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑	☐

Environmental Setting

The Hanford Air Quality Element identifies greenhouse gases as gases that trap heat in the atmosphere. The effect is analogous to the way a greenhouse retains heat. Greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFC), and perfluorocarbons (PFC). Natural processes and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of greenhouse gas, the earth's surface would be about 34 degrees Centigrade cooler. Greenhouse Gases (GHS) are gases that absorb infrared radiation in the atmosphere and are different from the criteria pollutants discussed in Air Quality.

Statewide legislation, rules, and regulations have been adopted to reduce GHG emissions from significant sources. The California Air Resources Board (CARB) and Environmental Protection Agency (EPA) regulate Greenhouse Gas Emissions (GHG) in the State of California and the United States respectively. CARB's primary regulatory responsibility is within California for GHG emissions. California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. The governor has also issued several executive orders related to climate change policies. Of particular importance is AB 32 and SB 32, which outline the state's GHG reduction goals and required the California Air Resources Board (CARB) to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Discussion

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction: Greenhouse gases would be generated during construction from activities including site demolition, site preparation, grading, building construction, application of architectural coatings,and paving. GHG emissions for the Project were estimated to be approximately 541 metric tons of carbon dioxide equivalent per year (MTCO2E/year) for residential construction and 149 MTCO2E/year per year for commercial construction (refer to Table 8.1 below). per year based on the Project description of 658 residential units, and 5.45 acres of commercial shopping center that will include two fast food restaurants, general retail and one gasoline/diesel fueling station with a mini-mart. The analysis was completed utilizing the CalEEMod Modeling Software and summarized in Table 8.-1 and 8-2 below. The full analysis can be found in Appendix B

Table 8.1 Estimated Construction Related Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E/yr$
Residential Year 1	Tons/yr	0.054	0.056	579	541
Residential Year 2	Tons/yr	0.054	0.056	579	541
Residential Year 3	Tons/yr	0.054	0.056	579	541
Residential Year 4	Tons/yr	0.054	0.056	579	541
Total Residential	**Tons**	**0.216**	**0.224**	**2,318**	**2,162**
Commercial Year 1	Tons/yr	0.012	0.022	160	149
Commercial Year 2	Tons/yr	0.012	0.022	160	149
Commercial Year 3	Tons/yr	0.012	0.022	160	149
Total Commercial	**Tons**	**0.035**	**0.066**	**480**	**446**

Notes: Total emissions numbers may not add up due to rounding.

Operation: Implementation of the proposed Project would result in long-term greenhouse gas emissions associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, as well as mobile emissions. Total GHG operational phase plus amortized construction phase emissions for the Project were estimated using the CalEEMod model, which estimates emissions to be approximately 8,185 MTCO2E/year for the residential Project and 4,494 MTCO2E/year per year for the commercial Project (refer to Table 8.2 below). Mobile emissions were estimated to be the primary source of GHG emissions.

Table 8.2 Estimated Operational Greenhouse Gases

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E/yr$
Residential Operational Phase without Resident Vehicle* Emissions	Tons/yr	0.013	0.229	609	561
Residential Operational Customer with Resident Emissions	Tons/yr	0.181	0.046	8,274	7,552
Total Operations Emissions	**Tons**	**0.194**	**0.276**	**8,882**	**8,113**
Commercial Operations Phase without Customer Vehicle* Emissions	Tons/yr	0.0005	1.22	73.5	97.8
Commercial Operations Phase with Customer Vehicle Emissions	Tons/yr	0.160	0.025	4,785	4,382
Total Operations Emissions	**Tons**	**0.161**	**1.25**	**4,859**	**4,479**
Total Residential Operational Phase Plus Amortized Construction Phase Emissions $MTCO_2E$/year*					**8,185**
Total Commercial Operational Phase Plus Amortized Construction Phase Emissions $MTCO_2E$/year*					**4,494**

*Notes: * - Construction GHG emissions were amortized over 30 years.*
Total emissions numbers may not add up due to rounding.

The SJVAPCD does not have thresholds or guidance regarding the significance of GHG emissions. However, the South Coast Air Quality Management District (SCAQMD) adopted an Interim GHG Significance

Threshold. For these reasons, Project GHG emissions levels presented in Tables 8.1 and 8.2 are primarily for disclosure purposes because impact analysis for the Project follows the approach certified by SCAQMD. The SCAQMD guidance identifies a threshold of 10,000 MTCO2 eq./year for GHG for construction emissions amortized over a 30-year Project lifetime, plus annual operation emissions. Although the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Tables 8.1 and 8.2 shows the yearly GHG emissions generated by the Project are less than 10,000 MTCO2 eq/year, therefore impacts are considered **less than significant.**

Mitigation Measures: None Required

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The City of Hanford adopted a Regional Climate Action Plan (CAP) in coordination with Kings County. The CAP includes a GHG inventory, a benchmarking/goal setting project and identified a reduction target for 2020. Although the CAP does not include a target for reduction in 2030, the measures in the plan will continue to provide reductions and help demonstrate continued progress in achieving the SB32 target for 2030.

The Regional CAP included policies that support emission reductions from new development. The Project contains features that have been evaluated for consistency with policies in the CAP and found consistent as summarized below in Table 8-3.

Table 8-3 Consistency with the Regional Climate Action Plan Policies

E-4.1 Encourage local homebuilders to participate in the New Solar Homes Partnership to install solar PV systems on qualifying new homes. **Consistent.** The proposed Project will comply with the latest CALGreen solar readiness and installation requirements.
E-4.2 Work with the building industry to incorporate designs improving solar readiness into building plans through voluntary green building guidelines. **Consistent.** The proposed Project will comply with the latest CALGreen solar readiness and installation requirements.
E-5.2 Provide project applicants with green building resources, including the SJVAPCD's Best Performance Standards list for GHG reductions, and promote workshops offered by community organizations **Consistent.** The proposed Project will include sustainability features in the Project design in accordance with SJVAPCD requirements, CALGreen, and City of Hanford standards.
TL-1.1 Support and encourage mixed-use and medium- and high-density land use categories located within ¼ mile of a transit stop, park and ride facility, or existing developed areas, by allowing flexible zoning and/or density bonuses for applicable projects. **Consistent**. The Project site is located within 0.25 mile of a transit stop. The proposed Project will consist of mixed uses with a range of densities and 5.45 acres of neighborhood commercial uses.
TL-1.3 Allow live/work developments that permit residents to live at their place of work and thereby reduce VMT and associated GHG emissions. **Consistent.** The proposed Project will include a range of residential uses and neighborhood commercial uses that will allow employees of the Project's commercial facilities to live within walking distance.

TL-2.3 Establish minimum design criteria for bicycle and pedestrian circulation and implement through the design review process. **Consistent.** The proposed Project would provide pedestrian infrastructure connecting to neighboring uses. The construction of 91/4 will include the right of way for the proposed class 3 bike lane on 9 ¼ Avenue.
TL-2.4 Encourage the installation of adequate and secure bicycle parking at all multi-family residential, commercial, governmental, and recreational locations throughout the region. **Consistent.** The proposed Project will comply with CALGreen Code requirements for bicycle parking.
TL-2.5 Support land use planning that will promote pedestrian and bicyclist access to and from new development by encouraging land use and subdivision designs that provide safe bicycle and pedestrian circulation, including bicycle parking facilities and internal bicycle and pedestrian routes, where feasible. **Consistent.** The proposed Project would comply with all applicable City design standards related to safe bicycle and pedestrian circulation.
TL-3.4 Support and encourage new development that provides safe routes to adjacent transit stops, where applicable. (Community) **Consistent.** The proposed Project will comply with City design standards that provide a safe route to a nearby transit stop.
TL.5.2 Allow the joint use of parking facilities for both private businesses and public agencies. ***Consistent.*** *The proposed commercial development will provide parking that will serve multiple businesses located within the shopping center.*

Source: King County Association of Governments Regional Climate Action Plan

The proposed Project would incorporate features that would minimize GHG emissions, as summarized above. These feature are consistent with the Regional CAP. As such, the Project will not conflict with plans, policies and regulations pertaining to GHG's, therefore impacts would be considered ***less than significant.***

Mitigation Measures: None Required

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard or excessive noise to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

Environmental Setting

The Project Site is located within two miles of the Hanford Municipal Airport, a public facility to the south. The nearest school is located adjacent to the Project to the west, Hamilton Elementary. There are two gas stations located at the intersection of 10th Avenue and East Grangeville Boulevard.

The Department of Toxic Substances Control's (DTSC's) Envirostor database was used to identify any sites known to be associated with releases of hazardous materials or wastes within the Project area, in accordance with Government Code Section 65962.5. No sites were identified in the DTSC research on the subject Project. A Phase 1 Site Assessment Report was prepared by Paul Humphreys EP, August 2024, Appendix D.

Discussion

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Project construction activities may involve the use, storage, and transport of hazardous materials. During construction, the contractor will use fuel trucks to refuel onsite equipment and may use paints and solvents to a limited degree. The storage, transport, and use of these materials will comply with Local, State, and Federal regulatory requirements. There is the potential for small leaks due to refueling of construction equipment, however standard construction Best Management Practices (BMPs) included in the SWPPP will reduce the potential for the release of construction related fuels and other hazardous materials by controlling runoff from the Site and requiring proper disposal or recycling of hazardous materials. The residential uses do not normally result in transportation of hazardous materials, with the exception of residential or commercial cleaners, paint, etc. Future uses within the commercial area are conceptual and will require further review and approval by the City. Any use will be required to comply with Local, State and Federal requirements for the storage, transport and use of hazardous materials. The impact is considered ***less than significant.***

Mitigation Measures: None Required

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

A Phase 1 Assessment was prepared by Paul Humphrey, EP dated August 2024. The Phase 1 included a review of records, interviews and a site reconnaissance visit, full report can be found in Appendix D. The result of the Phase 1 assessment is that there is no evidence of recognized environmental conditions in connection with the Property. The investigation has revealed the following Business Environmental Risk (BER)s associated with the Project Site or nearby properties:

- The Subject Property is currently and was historically used for agricultural purposes. There is a potential that agricultural related chemicals such as pesticides, herbicides, and fertilizers, may have been used onsite. Based on Paul Humphrey, EP's experience, during previous site development activities, near surface soils (where residual agricultural chemical concentrations would have most likely been present, if at all) are likely generally mixed with fill material or disturbed during grading. Also, it is common that engineered fill material is placed over underlying soils as part of site development activities. These additional variables serve to further reduce the potential for exposure to residual agricultural chemicals (if any). Based on these reasons, Paul Humphrey, EP concludes that the possible use of agricultural chemicals is not expected to represent a significant environmental concern. If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency.
- The Subject Property included one irrigation water well on the north northeast portion of the site along the north boundary. If the well is not to be used, the well should be properly destroyed in accordance with State and local guidelines.

A letter from DTSC was received in response to early consultation, found in Exhibit A. DTSC recommended two items be considered by the City and the City response:

1. When agricultural crops and/or land uses are proposed or rezoned for residential use, a number of contaminants of concern (COCs) can be present. The Lead Agency shall identify the amounts of Pesticides and Organochlorine Pesticides (OCPs) historically used on the property. If present, OCPs requiring further analysis are dichloro-diphenyl-trichloroethane, toxaphene, and dieldrin. Additionally, any level of arsenic present would require further analysis and sampling and must meet HHRA NOTE

NUMBER 3, DTSC-SLs approved thresholds. If they are not, remedial action must take place to mitigate them below those thresholds. Additional COCs may be found in mixing/loading/storage areas, drainage ditches, farmhouses, or any other outbuildings and should be sampled and analyzed. If smudge pots had been routinely utilized, additional sampling for Polycyclic Aromatic Hydrocarbons and/or Total Petroleum Hydrocarbons may be required.

Response:
As stated in the Phase 1, Paul Humphrey EP did not recommend further testing. Mr. Humphrey states "Based on Paul Humphrey, EP's experience, during previous site development activities, near surface soils (where residual agricultural chemical concentrations would have most likely been present, if at all) are likely generally mixed with fill material or disturbed during grading. Also, it is common that engineered fill material is placed over underlying soils as part of site development activities. These additional variables serve to further reduce the potential for exposure to residual agricultural chemicals (if any). Based on these reasons, Paul Humphrey, EP concludes that the possible use of agricultural chemicals is not expected to represent a significant environmental concern. If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency." In consultation with City of Hanford staff, the City is not requiring sampling on land formerly under agricultural production.

2. DTSC recommends that all imported soil and fill material should be tested to assess any contaminants of concern meet screening levels as outlined in DTSC's Preliminary Endangerment Assessment (PEA) Guidance Manual.

   No fill is anticipated to used for construction on the Project Site.

There is no reasonably foreseeable condition or incident involving the residential portion of the Project that could result in release of hazardous materials into the environment, other than any potential accidental releases of standard fuels, solvents, or chemicals encountered during typical construction of a residential subdivision and commercial development. Future potential commercial uses, including a gas station, within the commercial area will be reviewed by City staff for design and compliance with City, State and Federal standards for regulation of potential hazardous materials. Specifically, the gas station will be required to be designed to standards regulating gasoline storage and sales. Should an accidental hazardous release occur, existing regulations for handling hazardous materials require coordination with the California Department of Toxic Substances Control for an appropriate plan of action, which can include studies or testing to determine the nature and extent of contamination, as well as handling and proper disposal. Therefore, potential impacts are ***less than significant.***

Mitigation Measures: None Required

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Project is located within one-quarter mile of an existing school, Hamilton Elementary. The Project, which is comprised of typical residential uses and 5.45 acres of future commercial uses, is not anticipated to include a use that will involve the use or storage of hazardous substances other than small amounts of pesticides, fertilizers, and cleaning agents required for normal maintenance of residential and commercial structures and landscaping. The proposed commercial area is not located within a one-quarter mile of a school. The Project would not emit hazardous emissions or involve the handling of acutely hazardous

materials or waste, therefore, impacts would be ***less than significant***.

Mitigation Measures: None Required

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The Project Site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5. In addition, the Phase 1 Assessment Report, Appendix D, revealed no evidence of recognized environmental conditions in connection with the Property; therefore there is ***no impact.***

Mitigation Measures: None Required

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazardor excessive noise for people residing or working in the project area?

The proposed Project is not located within an airport land use plan, although it is located within two miles of a public airport. The closest airport is the Hanford Public Airport approximately 1.5 miles south of the Project Site. The proposed Project would not result in a safety hazard or excessive noise for people residing or working in the Project area, therefore there is **no impact.**

Mitigation Measures: None Required

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The City's site plan review procedures, building permit and improvement plan check processes ensure compliance with the Hanford Safety Element and the Kings County 2023 Local Hazard Mitigation Plan. The Project will not interfere with any adopted emergency response and evacuation plans, therefore there is **no impact.**

Mitigation Measures: None Required

g) Would the project expose people or structures, either directly or indirectly, to significant risk of loss, injury or death involving wildland fires?

The land surrounding the Project Site is developed with urban uses and agricultural uses and are not considered to be wildlands or located within a fire hazard severity zone. The proposed Project would not expose people or structures to significant risk of loss, injury or death involving wildland fires, therefore there is **no impact.**

Mitigation Measures: None Required

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise sustainably degrade surface or ground water quality?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:	☐	☐	☑	☐
(i) result in substantial erosion or siltation on- or off-site?	☐	☐	☑	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☑	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☑	☐
(iv) impede or redirect flood flows?	☐	☐	☐	☑
d) In flood hazard, tsunami, or seiche zones risk the release of pollutants due to project inundation?	☐	☐	☑	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater movement plan?	☐	☐	☑	☐

Environmental Setting

The Project Site is anticipated to be within the City Limits upon annexation and as such, will be required to connect to water, wastewater and stormwater services. The Project is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). A Water Supply Assessment (WSA) was prepared by The Wallace Group dated January 2025, Appendix D, and is the analysis used for the impact assessment below.

Discussion

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

During construction, potential impacts on water quality arising from erosion and sedimentation are expected to be temporary conditions during the construction of the new development. Because the Project is greater than one acre in size, the development must prepare and have approved a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to prevent construction pollutants from contacting stormwater to keep all erosion products from moving off-site and into receiving

waters during construction. In addition, prior to the commencement of construction activities, the development would be required to adhere to the requirements of the City of Hanford standards for grading and have an approved grading permit. The intention is to eliminate or reduce non-stormwater discharge to storm sewer systems and other waters of the United States. The Project includes an on-site temporary storm water basin that will be designed and approved by the City of Hanford to control stormwater runoff and erosion. Project-specific drainage improvements would reduce the proposed Project's potential to violate water quality standards during construction to a less than-significant impact. The proposed Project will not discharge to any surface or groundwater source. As such, the Project will not violate any water quality standards and will not impact waste discharge requirements, therefore impacts are determined to be ***less than significant***.

Mitigation Measures: None Required

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The City of Hanford obtains its water supply solely from groundwater. According to the City of Hanford Urban Water Management Plan (2020) and the City's website, the City sources its water supply from groundwater through a network of 15 wells, 3.5 million gallons of storage tanks and has a capacity 34.5 million gallons per day. The estimated water demand for the proposed Project is 176-179 acre feet per year.

The Project Site is located within the Tulare Lake Subbasin of the San Joaquin Groundwater Basin. The Tulare Lake Subbasin is considered by DWR to be a high priority basin according to SGMA and in critical overdraft condition. The subbasin is collectively managed by three GSAs consisting of the East Kaweah GSA, the Mid-Kaweah GSA (MKGSA), and the Greater Kaweah GSA (GKGSA). The Project site is currently within the boundaries of the MKGSA. Each of the GSAs within the subbasin have developed a Groundwater Sustainability Plan (GSP) but collectively have determined a subbasin-wide sustainable yield of 660,000 acre-feet per year (AFY).

In accordance with Senate Bill 610, which supplements the California Water Code (CWC), a Water Supply Assessment (WSA) was prepared by The Wallace Group (January 2025), Appendix E. The projected water usage for the 356 single-family units and 302 multi-family units (Project scope has been reduced to 650, but the WSA used 658) was determined using two different methods to determined a range of water usage. The first method estimates indoor and outdoor water usage on a per dwelling unit basis (i.e., individual lot) with results of 161 acre feet per year. The assumptions were based on an occupancy of 2.96 persons per household, equal to the occupancy rate cited in the 2020 UWMP, and a demand of 50 gallons per capita per day (gpcd). California State Water Code Section 10608.20 uses a target indoor water demand factor of 55 gpcd as an option for agencies in complying with water conservation requirements which reduces to 42 gpcd by 2030; this analysis assumes 50 gpcd.

The second method used to estimate residential water demand, relies on a water duty demand factor from the 2017 Water System Master Plan (WSMP) based on land use type and acreage which provides an estimate of total water usage of 159 acre feet per year.

The 5.45 acre commercial is estimated to use 4.49 acre feet per year. Commercial water demands were estimated using the water duty demand factors from the Water System Master Plan (WSMP). Retail buildings are assumed to be regional commercial land usage, and food and convenience/gas buildings as

highway commercial.

The total estimated water demand for the Copper Ridge development is 176-179 acre feet per year, with system losses of 7.4% extrapolated from the reported losses in UWMP, using the total metered demand and system losses.

The UWMP outlines the current City limits and land use. The proposed Project is within the City's 2035 growth boundary. The predominantly low-density residential housing with commercial space is shown in a planned low- and medium-density residential zone. This growth area and corresponding land use were used in the 2017 WSMP as the basis for estimating future water demands, therefore, the City is actively planning for development in the area of proposed development and other areas within the growth boundary. The Project would be served by the City public water service, which relies on groundwater from the Lake Tulare subbasin. Water supply sufficiency is addressed in the City's 2020 UWMP which evaluates conditions under a single normal year, single dry year, and multiple dry years over a 20-year period. During the fifth year of a multiple dry year scenario, the Copper Ridge is expected to add up to 200 acre-feet of demand per year, which represents approximately 1.2% of the estimated 2045 water supply, indicating the Copper Ridge development will have a ***less than significant*** impact on the City's overall water supply.

Mitigation Measures: None Required

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:

i. Result in substantial erosion or siltation on- or off-site?

The proposed Project includes the construction and operation of residential homes and 5.45 acres of commercial development on formerly agricultural land. During construction, and in compliance with the Project's SWPPP, construction related erosion controls and BMPs would be implemented to reduce potential impact related to erosion and siltation. The BMPs would include, but are not limited to, covering and/or binding the soil surfaces to prevent soil from being detached and transported by water or wind and the use of barriers such as straw bales and sandbags to control sediment. The Project will increase impervious surface with the installation of paving of streets, concrete pads for homes and sidewalks. In order to adequately capture and discharge stormwater runoff, the Project streets, curb and gutter will be conditioned to be constructed to City standards. Improvement plans will be reviewed by City staff for approval prior to construction. This review and approval will result in impacts that are ***less than significant.***

ii. Substantially increase the rate or amount of surface runoff in a manner which would resultin flooding on- or offsite?

The Project Site is relatively flat, and grading would be minimal and would not appreciably change because of grading activities. The Project would result in an increase in impervious surfaces that could significantly reduce the rate of percolation of stormwater at the site and would concentrate and accelerate surface runoff. However, as mentioned in Section (c)(i) above, the Project includes a storm drain basin of adequate size to facilitate all surface runoff generated by the Project's impervious surface, and would not result in surrounding properties being impacted by the Project's runoff. The Project will not result in the alteration to any stream or rivers. Therefore, the Project would have a ***less than significant impact***.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Please see response (a) through (c)(ii), above. The Project will increase demand on the City storm drain system. Such increases may have the potential for significant environmental impacts but can be mitigated to a less than significant level by the construction of an on-site storm basin sized to accommodate stormwater from the Project, as shown on the Copper Ridge Tentative Subdivision Map, Figure 7. and incorporating best management practices for storm runoff. The Project will be required to comply with all applicable State and City codes and regulations for stormwater drainage and runoff. No streams or rivers exist within the Project's vicinity that would result in substantial erosion or siltation on or offsite.

The Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, nor provide additional sources of polluted runoff.

Upon compliance with the State and City standards for the construction of stormwater basins and best management practices to manage runoff impacts would be ***less than significant.***

iv. Impede or redirect flood flows?

The proposed Project is not located within the 100-year flood hazard area as mapped by the Federal Emergency Management Agency (FEMA). Therefore, the proposed Project would not impede or redirect potential flood flows, and the proposed Project would have ***no impact***.

Mitigation Measures: None Required

d) Would the project, in flood hazard, tsunami, or seiche zones, risk the release of pollutants due to project inundation?

The proposed Project is not located in a flood hazard, tsunami or seiche zone. There are no rivers, reservoirs, ponds or lakes within the site. Since the Project is not located in an area that is susceptible to inundation, the Project would not risk release of pollutants due to Project inundation. As such, there is ***no impact.***

Mitigation Measures: None Required

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Project will not conflict with any water quality control plans or sustainable groundwater management Plan. Specifically it will be required to comply with the Mid Kings River Groundwater Sustainability Agency (MKRGSA) sustainability plan and City of Hanford policies in the Hanford Stormwater Drainage Plan. By conforming to all standards and policies as stated above, there will be **no impact** associated with the Project.

Mitigation Measures: None Required

XI. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Environmental Setting

The proposed Project Site is located adjacent to the City limits of Hanford along the northeastern edge. The site is currently designated for low density and medium density residential by the City of Hanford General Plan. The Project application includes a request for annexation to the City, a general plan amendment to allow medium density residential and neighborhood mixed use and the corresponding zoning of RM and MX-N. The proposed Project includes a Planned Unit Development that will allow the proposed subdivision and meet the densities required in the General Plan.

Discussion

a) Would the project physically divide an established community?

The Project proposes the development of 650 residential units on approximately 78.16 acres and 5.45 acres of commercial land use. The Project does not include a physical feature such as a highway or railroad, that would physically divide a community by eliminating access. As such, the Project would not act as a physical barrier within a community, therefore there is ***no impact.***

Mitigation Measures: None Required

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The Project's current land use designation is a mix of Low Density and Medium Density Residential in the General Plan. The Project includes a change from the Low to Medium density to increase the Medium density area and add 5.45 acres of Mixed Use Neighborhood Commercial with an application for a Planned Unit Development (PUD) to allow the variety of lot sizes, while still meeting the densities in the General Plan. The Project will create 650 units on 78.16 acres, which is a density of 8.32 units per acre, which is consistent with the Land Use Element of the General Plan, as amended, and is also within the current allowed densities of Low Density 2 to 10 units per acre and Medium Density 7 to 20 units per acre. The general plan amendment to change from Low Density to Medium Density is also in conformance to the polices pertaining to the East Side Area in the General Plan that state higher densities are to be encouraged. The change to allow the Mixed-Use Neighborhood Commercial is also supported by the following policies in the General Plan pertaining to providing neighborhood type commercial close to neighborhoods as listed below:

3.6 Mixed Land Use

The intent of the mixed-use land use designations is to provide for a mixture of stores, services, restaurants, offices, and homes (dwelling units) in close proximity, thereby allowing residents to work and shop close to home and reduce the length and frequency of trips between home, work, shopping, and services. This contributes to opportunities to increase the use of public transit, reduce auto dependency, provide a wider range of housing choices, and promote activity during more hours of the day. Both vertical and horizontal mixed-use developments are encouraged in the mixed use designations. The Hanford Zoning Ordinance provides the enforcement mechanism to implement the identified policies.

Goal L15: More opportunities for mixed use projects.

Goal L16: A mix of land uses, vertical, horizontal or both, at appropriate locations in the city.

Goal L17: A mixture of commercial shopping and services with multi-family residential dwellings in a vibrant, walkable environment.

Goal L18: Opportunities to design land uses that meet people's residential and shopping needs while reducing reliance on automobiles.

3.6.1 Neighborhood Mixed Use

Policy L60 Purpose of Neighborhood Mixed Use Land Use Designation Establish the Neighborhood Mixed Use land use designation to promote mixed-use commercial and multifamily residential areas that allow walking to and between the mix of uses. New development may be oriented towards an existing public street or a new street or civic space within the development site.

Policy L61 Typical Uses in Neighborhood Mixed Use Land Use Designation Define the uses allowed in the Neighborhood Mixed Use land use designation to include multi-family dwellings along with businesses providing day-to-day goods and services for the surrounding and nearby residential neighborhoods. Commercial uses that would primarily serve a citywide or regional market area shall not be allowed. Typical uses include duplexes, townhomes, apartments, markets, small retail shops, eating establishments, service stations, convenience stores, dry cleaning and laundry services, beauty salons, and other similar uses. Both vertical and horizontal mixed-use developments are encouraged.

Policy L62 Design of Neighborhood Mixed Use Land Use Designation Require that new development projects and major site reconfigurations in the Neighborhood Mixed Use land use designation provide site layouts, buildings, landscaping, walkways, and signage that are oriented primarily to the pedestrian. Require pedestrian access between residential and commercial uses and prohibit parking areas, walls, and landscaping in locations on the site that block or hinder pedestrian access. The maximum residential density permitted in a horizontal mixed use development is fifteen (15) dwelling units per acre.

Policy L63 Location and Size of Neighborhood Mixed Use Land Use Designation Locate Neighborhood Mixed Use land use designations on eight (8) to twenty-five (25) acres at roughly one-mile intervals on one corner of an intersection of an arterial street and an arterial or collector street. This land designation takes the place of the Neighborhood Commercial land use designation on some corners.

Policy L155 Eastside Higher Density Residential Uses Support the development of higher density residential uses in close proximity to the Grangeville Boulevard corridor and the gradual transition to lower density, single-family residential uses as distance from the Arterial road increases.

Policy L156 Eastside Development along Grangeville Boulevard Discourage "strip" development along

Grangeville Boulevard from an overall community development perspective. Develop design policies and regulations that identify a minimum percentage of street-facing building facades and minimize the exposure of parking and masonry walls along the street.

The proposed Project, including the proposed general plan amendment, does not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. There is ***no impact.***

Mitigation Measures: None Required

XII. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than SignificantWith Mitigation Incorporation	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally - important mineral resource recovery site delineated on a local general plan, specific plan or other lands use plan?	☐	☐	☐	☑

Environmental Setting

According to the Hanford 2035 General Plan Background Report, the only significant mineral commodities that have been found within the Hanford Planning Area are sand and gravel for road and building construction. At this time there are no known significant deposits, and no active mines.

Discussion

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The Project Site has no known mineral resources that would be of value to the region and the residents of the state, therefore the proposed Project would not result in the loss of regionally or locally important mineral resources. Therefore, there is ***no impact.***

Mitigation Measures: None Required

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other lands use plan?

There are no known mineral resources of importance to the region and the Project Site is not designated under the City's General Plan as an important mineral resource recovery site, therefore there is ***no impact***.

Mitigation Measures: None Required

XIII. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Generation of a substantial temporary or permeant increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive ground-borne vibration or groundborne noise levels?	☐	☐	☑	☐
c) For a project located within the vicinity of a private airstrip or, an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Environmental Setting

Noise is often described as unwanted sound. It consists of any sound that may produce physiological or psychological damage and/or interfere with human communication, work, rest, recreation, and sleep. Noise has become an environmental pollutant that threatens quality of life. Extreme levels of noise can cause pain and hearing loss. In addition, continuous exposure to noise pollution is associated with hypertension, increased blood pressure, impaired reading comprehension and long term memory in children.

Vibration is seismic waves that radiate along the surface of the earth and downward into the earth. The operation of heavy construction equipment, particularly pile driving and other impact devices such as pavement breakers create this vibration.

Principal noise sources in the City of Hanford include traffic on major roadways, including State Route 198, and railroad noise. In the Project area, the primary noise is from traffic noise and rail noise from the Union Pacific (UP) railroad to the south, although it is infrequently used. Other potential noise sources are related to the ag uses to the east, north and south.

The closest noise sensitive receptors are the school and the residents of the single-family residential properties to the west.

Discussion

a) Would the project result in generation of a substantial temporary or permeant increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Project construction is anticipated to be in phases over the course of four to five years and will involve temporary noise sources. Typical construction noise will come from graders, tractors, trenchers and excavators. Construction noise from the home building will contribute to the noise environment of

the homes and school to the west. The City Municipal Code does not contain specific noise standards for motor vehicles and other noise sources; however, the General Plan contains guidelines that limit exterior noise levels for residential and schools to 60 – 70 dBA CNEL. The Hanford Municipal Code (HMC) Section 9.10.060(A)(10) does limit construction noise to between the hours of 7:00 a.m. and 8:00 p.m. The Project construction will be required to limit construction noise to these hours.

Operational noise from both the residential and commercial will primarily be from vehicles traveling along Grangeville Boulevard, 9 ¼ Avenue, Leland Way and 9th Avenue, as well as the internal circulation within the subdivision. Although the uses within the commercial development have not been determined, it is anticipated that new noise will be generated from vehicles, potential drive-throughs and loudspeakers. Noise will be required to comply with HMC Section 9.10 pertaining to Loud or Annoying Noise, including hours of operations for noise generating activities.

Because noise generated from construction would be temporary and operational noise from both the residential and the commercial site would be required to comply with HMC Section 9.10, impacts are determined to be ***less than significant.***

Mitigation Measures: None Required

b) Would the project result in generation of excessive ground-borne vibration or groundborne noise levels?

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 13-1, below, shows the typical vibration levels produced by construction equipment.

Table 13.1 Typical Vibration Levels Typical Equipment

	Peak Particle Velocity (inches/second) at 25 feet	**Approximate Vibration Level (LV) at 25 feet**
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58
Auger/Drill Rig	0.089	87
Jackhammer	0.0.35	79
Vibratory Compactor/roller	0.210	94

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration

The primary vibration-generating activities associated with the proposed Project would occur when grading of the site is conducted, and when infrastructure such as utilities, and foundations are constructed. Operating cycles for the types of construction equipment used during construction may involve one or two minutes of full power operation followed by three or four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These estimations of noise levels take into account the distance to the receptor, attenuation from molecular absorption and anomalous excess attenuation.

While there is a school and residences to the west of the proposed Project, vibratory compactors/rollers would be used only on a limited and intermittent basis during compaction, and

would be moving throughout the site, instead of stationary or operated long-term in the same location to the extent it would damage buildings due to longer-term extended use. Therefore, this would be considered a ***less than significant impact.***

Mitigation Measures: None Required

c) For a project located within the vicinity of a private airstrip or, an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

According to the Kings County Airport Land Use Plan, the Project Site is not located in an airport land use plan. The Project Site is approximately one mile from the public airport, but is outside the anticipated noise contours as shown on the Airport Compatibility Zone Map in the General Plan Background Report, therefore there is ***no impact.***

Mitigation Measures: None Required

XIV. POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by new homes and businesses) or indirectly (forexample, through extension of roads or other infrastructure)?	☐	☐	☑	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Environmental Setting

The United States 2020 Census determined the Hanford population to be 58,997 in 2020 and estimates the current population to be 59,938 based on most recent projections. The average household size, as determined in the census was 3.08 persons.

Discussion

a) Would the project induce substantial unplanned population growth in an area, either directly (for example by new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Project proposes to construct 650 new residential units in a mix of single family and multiple family units. The United States 2023 Census estimate states that the City's average household size is 3.08 persons. Based on this average household size, the anticipated population increase as a result of the proposed Project is 2,002 persons. This would be an increase of 3.3 percent beyond existing conditions.

The construction of housing at this location would not be unplanned, as the City's General Plan designates the proposed Project Site for residential development and the potential population increase was evaluated in the associated General Plan EIR. Although the Project includes a General Plan Amendment to change from Low Density Residential to Medium Density Residential, the proposed density of 8.5 units per acre is within the density range of the Low Density Residential of 2-10 units per acre, within the range contemplated in the 2035 General Plan and associated EIR. The City 2024-2032 Housing Element identified the following goal and policies for housing in the City of Hanford:

GOAL 2. Facilitate and encourage the provision of a range of housing types and prices to meet the diverse needs of residents.

Policy 2.1. Provide adequate sites for housing through appropriate land use, zoning and development standards to accommodate the regional housing needs for the current planning period.

Policy 2.3. Ensure the adequate provision of water, sewer, roads, public facilities, and other infrastructure necessary to serve new housing.

Policy 2.4. Support the construction of high quality single and multi-family housing which is well designed and energy efficient.

The Project would not induce substantial unplanned population growth directly or indirectly, therefore impacts are considered to be ***less than significant.***

Mitigation Measures: None Required

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed Project Site is undeveloped and does not involve the removal of housing or displacement of people, therefore there is ***no impact.***

Mitigation Measures: None Required

XV. PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times of other performance objectives for any of the public services:				
a. Fire protection?	☐	☐	☑	☐
b. Police protection?	☐	☐	☑	☐
c. Schools?	☐	☐	☑	☐
d. Parks?	☐	☐	☑	☐
e. Other public facilities?	☐	☐	☑	☐

Environmental Setting

Fire: The Project Site will be served by the City of Hanford Fire Department.

Police: The City of Hanford Police Department will provide law enforcement services to the proposed Project Site.

Schools: The proposed Project Site is located within the Hanford Elementary School District and the Hanford Joint Union High School District. Students will attend Hamilton Elementary and Hanford High School. The closest school being Hamilton Elementary located across the street from the Project to the west. Funding for schools is outlined in Education Code Section 17620 and Government Code Section 65995 et. Seq., which governs the amount of fees that can be levied against new development. These fees are used to construct new or expanded school facilities. Payment of fees authorized by the statute is deemed "full and complete mitigation."

Parks: The closest park is located directly across the street to the west, Freedom Park. A new park, Heros Park, is in the planning stages and will be located within one mile to the southeast.

Discussion

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable serve ratios, response times of other performance objectives for any of the public services:

a. Fire protection?

The City of Hanford Fire Department will provide fire protection services to the proposed development. The nearest Fire station is located at 350 W Grangeville Boulevard, approximately 1.3 miles west of the proposed Project. The addition of 650 residential units and 5.45 acres of commercial development will increase the demand for fire protection services. The need for new fire service facilities is assessed as the City continues to grow and develop within the growth boundary in the City's General Plan. The development of 650 residential units and the commercial development alone will not require the alteration of existing or construction of new fire services facilities, but would contribute to the cumulative need for increased fire protection services. The increase in service demand will be compensated by the payment of a fire development impact fee. Payment of the impact fee is considered mitigation and payment of the Project's fair share contribution towards cumulative increases in demand for fire protection services.

The timing of when new fire service facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As new or expanded fire service facilities become necessary, construction or expansion Projects would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, impacts resulting from the proposed Project would be **less than significant**.

Mitigation Measures: None Required

b. Police protection?

The Hanford Police Department will provide services to the proposed development. The Hanford Police Department is located at 425 N. Irwin in downtown Hanford. The addition of 650 residential units and 5.45 acres of commercial development will increase the demand for police protection services. The need for new police service facilities is assessed as the City continues to grow and develop within the growth boundary in the City's General Plan. The development of 650 residential units and the commercial development alone will not require the alteration of existing or construction of new police services facilities, but would contribute to the cumulative need for increased police protection services. The increase in service demand will be compensated by the payment of a police development impact fee. Payment of the impact fee is considered mitigation and payment of the Project's fair share contribution towards cumulative increases in demand for police protection services.

The timing of when new police service facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As new or expanded police service facilities become necessary, construction or expansion Projects would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, impacts resulting from the proposed Project would be **less than significant**.

Mitigation Measures: None Required

c. Schools?

Since the proposed Project includes the addition of 650 residential units, the number of students in the school district will increase. The Project will pay school development impact fees to the school districts at the time of building permit issuance in compliance with Education Code Section 17620 and Government Code Section 65995 et. Seq.. These fees are used to construct new or expanded school

facilities. Payment of fees authorized by the statute is deemed "full and complete mitigation" therefore impact will be ***less than significant.***

Mitigation Measures: None Required

d. Parks?

The addition of 650 new residential units would result in more use at existing parks. The Project is located adjacent to Freedom Park, west of the Project and within one-half mile to the new Heros Park currently in the planning phase. The Project will also pay the park development impact fee of $3,192 for single family residential and $3,096 for multiple family dwelling units. Since the Project would contribute its fair share to parks facilities through payment of in-lieu fees, the impact ***is less than significant***.

Mitigation Measures: None Required

e. Other public facilities?

The Project is within the planning area anticipated in the Hanford General Plan and as such would not result in increased demand for, or impacts on, other public facilities that were not anticipated. In addition, the Project will also pay development impact fees to support library, public health etc. to Kings County, therefore impacts are considered ***less than significant.***

Mitigation Measures: None Required

XVI. PARKS AND RECREATION

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☑	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☑

Environmental Setting

The closest City park is Freedom Park, located directly west of the Project Site. The Project is also within one half mile of the future Heros Park currently in the planning phases. According to the City of Hanford 2019 Park and Recreation Master Plan, the City had 299.7 acres of developed park acreage, which was 5.06 acres per 1,000 residents. The City has added 8.9 acres since 2019 for a total of 308.6. Based on the current population estimate of 59,938 persons, the City has 5.14 acres of park space per 1,000 persons. The General Plan identified a goal of 3.5 acres per 1,000. The City will be adding additional park space by expanding Hidden Valley Park and Heros Park.

Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Implementation of the proposed Project would result in increased use of existing parks and other recreational facilities, however the Project would contribute its fair share to parks facilities through the payment of park development impact fees, which is intended to be used to provide additional community park acreage, such as Heros Park and Hidden Valley Park expansion in the City; therefore the impact is ***less than significant.***

Mitigation Measures: None Required

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Project does not include any recreational facilities, therefore there will be ***no impact***.

Mitigation Measures: None Required

XVII. TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than SignificantWith Mitigation Incorporation	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance orpolicy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Conflict or be inconsistent with the CEQA guidelines Section 15064.3, Subdivision (B)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves ordangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☐	☑

Environmental Setting

The proposed Project is located at the northeast corner of Grangeville Boulevard and 9 ¼ streets. A traffic study was prepared to review impacts to traffic intersections and segments as well as Vehicle Mile Traveled (VMT), Appendix H.

Vehicular Access: Vehicular access to the Project will be to 9 ¼ Avenue, Leland Way, future 9th Avenue and Grangeville Boulevard. The Project has been designed to provide connection to the surrounding arterial and collector streets.

Pedestrian and Cyclist Connectivity: The Project will install sidewalks along all arterial and collector streets as well internal local streets in accordance with City development standards. City staff has stated that future 9 1/4 Avenue will have a Class 3 Bike Lane.

Discussion

a) Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The Project consists of the construction of 650 single family and multiple family residential units as well as on-site circulation-related infrastructure improvements, including new local residential streets. A Traffic Study was prepared by C2 Consulting, December 2024, Appendix G. The City requested that the following intersections be studied as part of the traffic study.

1) Grangeville Blvd.at 10 Avenue
2) Grangeville Blvd.at 9 ¼ Avenue
3) Grangeville Blvd.at SR 43
4) 9 ¼ Avenue at Florinda Street
5) 9 ¼ Avenue at Leland Way

The TIS included a Level of Service (LOS) analysis for the following scenarios:

1) Existing
2) Existing plus the Copper River Project
3) Existing plus the Copper River Project (mitigated, if necessary)

Level of Service Standard The City of Hanford's Transportation Element Policy T29 set's the maximum Level of Service at "E" on streets and intersections within the area bounded by Highway 198, 10th Avenue, 11th Avenue, and Florinda Avenue, inclusive of these streets. The City has set a peak hour Level of Service of "D" on all other streets and intersections with the Planned Growth Boundary.

New trips generated by the Copper Ridge Project were estimated using the Institute of Transportation Engineer's (ITE) Trip Generation Manual. This publication provides average rates of trip generation for different land uses and relates these to dwelling units (residential) and square footages (fast food and retail shops). It should be noted that for the proposed minimart, the trip generation was computed from an estimated 16 gas pumps as depicted on the site plan layout. Trip generation rates are provided for weekdays along with the proportion of trips that are inbound or outbound from the development. The resulting Project trip generation is 862 trips in the AM peak hour and 1,079 trips in the PM peak hour. The Copper Ridge Project is estimated to generate a total of 12,091 daily trips.

Utilizing the ITE trip manual, pass by trips were estimated, which resulted in the final Project trip generation of 549 in the AM and 717 in the PM. The LOS for all intersections was calculated for Existing plus Project as shown below in Table 17.1. As illustrated below, all intersections are calculated to operate above the City's LOS minimum of "D" therefore no mitigations are required and impacts are considered ***less than significant.***

Table 17.1 Existing Conditions PLUS Project
Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Grangeville Blvd.at 10th Ave	25.0	C	23.0	C
Grangeville Blvd.at 9 ¼th Ave	25.9	C	24.5	C
Grangeville Blvd.at SR 43	10.9	B	13.6	B
9 ¼ Ave at Florinda St				
Northbound approach	8.2	A	7.9	A
Eastbound approach	13.1	B	11.6	B
9 ¼ Ave at Leland Way				
Westbound approach	7.8	A	7.5	A
Northbound approach	11.6	B	10,5	B

Mitigation Measures: None Required

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?

The City adopted the City of Hanford VMT Thresholds and Implementation Guidelines (VMT Guidelines), dated November 2022. Based on the VMT Guidelines, an analysis was prepared by LSA Associates, January 2025. The analysis was based on the Project being a mixed use Project. Individual land use components were analyzed separately for purposes of the VMT analysis. The Project VMT analysis has been conducted based on the current Project description. The estimated 37,700 square feet of retail/commercial component of the Project could be screened out using the 55,000 square foot screening criteria for retail projects. However, the residential components of the Project don't meet any of the screening criteria identified in the VMT Guidelines. The VMT Guidelines further recommend that for projects/components of a project that could not be screened out using the project screening criteria, a detailed VMT analysis should be conducted using the methodology and significant threshold criteria identified in it.

Utilizing the Kings County Association of Governments (KCAG) modeling for VMT, the threshold for VMT is 8.99 miles. The result of the model is that the Project will have a VMT of 8.98, lower than the threshold. As the VMT per capita for residential component of the Project is lower than the regional threshold, based on the VMT analysis, the residential component will not have any significant VMT impact. Since all the components of the Project could be either screened out or would have a less than significant VMT impact, the entire Project will have a ***less than significant*** impact.

Mitigation Measures: None Required

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No geometric design feature associated with the Project would pose a hazard to the public and there would be no incompatible uses. The design of the City circulation system is required to comply with City standards and approved by the City Engineering Division, therefore there is ***no impact.***

Mitigation Measures: None Required

d) Would the project result in inadequate emergency access?

The proposed Project will not result in inadequate emergency access. Emergency access to the site will be from all surrounding major roadways into the development. City staff has evaluated each phase of development and determined that each phase will have at least two access points to a collector or arterial and have adequate access. A minimum of two access points provide emergency access consistent with City standards, which have been reviewed by the City's Fire Department. Therefore, there is ***no impact.***

Mitigation Measures: None Required

XVIII. TRIBAL CULTURAL RESOURCES

Would the project: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically definedin terms of the size and scope of the landscape, sacred place, or object with cultural value to aCalifornia Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in alocal register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☑	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐

Environmental Setting

A Tribal Cultural Resource (TCR) is defined under Public Resources Code Section 21074 as a site, place, cultural landscape that is geographically defined in terms of size and scope, sacred place and object with cultural value to a California Native American tribe that are either included and that is listed or eligible for inclusion in the California Register of Historic Resources or in a local register of historical resources, or if the City of Hanford, acting as the Lead Agency, supported by substantial evidence, chooses at its discretion to treat the resource as a TCR.

California Native American tribes traditional and culturally affiliated with the Project Site and area were notified in accordance with AB 52 and SB 18 on December 4, 2024. A list of Native American Tribes was obtained from the Native American Heritage Commission (NAHC) which included the following tribes:

- Kitanemuk & Yowlumne Tejon Indians
- Santa Rosa Rancheria Tachi Yokut Tribe
- Table Mountain Rancheria
- Tule River Indian Tribe
- Wuksachi Indian Tribe/Eshom Valley Band

No responses have been received to date.

Definitions

- **Historical Resources**: Historical resources are defined by CEQA as resources that are listed in or eligible for the California Register of Historical Resources, resources that are listed in a local historical resource register, or resources that are otherwise determined to be historical under California Public Resources Code Section 21084.1 or California Code of Regulations Section 15064.5. Under these

definitions Historical Resources can include archaeological resources, Tribal cultural resources, and Paleontological Resources.

- **Archaeological Resources:** As stated above, archaeological resources may be considered historical resources. If they do not meet the qualifications under the California Public Resources Code 21084.1 or California Code of Regulations Section 15064.5, they are instead determined to be "unique" as defined by the CEQA Statute Section 21083.2. A unique archaeological resource isan artifact, object, or site that: (1) contains information (for which there is a demonstrable public interest) needed to answer important scientific research questions; (2) has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

- **Tribal Cultural Resource (TCR):** Tribal Cultural Resources can include site features, places, cultural landscapes, sacred places, or objects, which are of cultural value to a Tribe. It is either listed on or eligible for the CA Historic Register or a local historic register, or determined by the lead agency to be treated as TCR.

- **Paleontological Resources:** For the purposes of this section, "paleontological resources" refers tothe fossilized plant and animal remains of prehistoric species. Paleontological Resources are a limited scientific and educational resource and are valued for the information they yield about the history of the earth and its ecology. Fossilized remains, such as bones, teeth, shells, and leaves,are found in geologic deposits (i.e., rock formations). Paleontological resources generally includethe geologic formations and localities in which the fossils are collected.

Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

A Cultural Resources Assessment was prepared by Taylored Archaeology dated November 24, 2024, Appendix D. As stated in the assessment, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource, nor is it listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources. As part of the assessment, a records search was completed by the Southern San Joaquin Valley information Center. Based on the results of the records search, no previously recorded tribal cultural resources are located within the Project Site. Although no historical resources were identified and the presence of remains are not anticipated, cultural resources under the ground surface are possible. The Cultural Resources Assessment included a recommendation for two mitigations previously listed under Cultural Resources, CUL 1 and CUL 2. The City and the Santa Rosa Rancheria Tachi Yokut Tribe have also agreed to an additional mitigation measure that requires the developer/owner to agree to a burial treatment plan prior to any ground disturbing activities. Mitigation Measures CUL-1, CUL-2 and CUL 3 will ensure that impacts will be **less than significant with mitigation.**

Mitigation Measures:

Implementation of CUL 1, CUL 2 and CUL 3

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The lead agency has not determined there to be any known cultural resource on the Project Site that would meet the criteria in subdivision (c) of Public Resources Code Section 5024.1 therefore there is no impact. If a resource is discovered, the implementation of Mitigation Measures CUL 1, CUL 2 and CUP 3 previously listed under Cultural Resources will ensure that any impacts will be **less than significant**.

Mitigation Measures: Implementation of CUL 1 , CUL 2 and CUL 3.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than SignificantWith Mitigation Incorporation	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☑	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

The proposed Project will be required to connect to water, solid waste and wastewater services.

Water

The City of Hanford's water supply system is a groundwater system. The city is located within the Tulare Lake Hydrologic Region is within the Tulare Lake Groundwater Subbasin which transmits, filters, and stores water from the main San Joaquin Valley Groundwater Basin. The system consists of 15 groundwater wells, three storage reservoirs, distribution mains, and fire hydrants. The system does not use surface water.

Solid Waste

Solid waste in the city is collected by a private contractor, Kings Waste Recycling Authority (KWRA). Refuse is sorted at the KWRA facility to recover recyclable materials before being hauled to the landfills in Kettleman Hills. For single-family residential customers, the City has instituted a green waste collection mixed recycle collection program.

Wastewater

The City of Hanford wastewater system provides for the treatment, disposal, and reuse of effluent, which meets all of the state's discharge requirements for the city. The wastewater system consists of a treatment plant and 21 sanitary sewer lift stations located throughout the city. The treatment facility has a capacity of 8 million gallons per day and is located south of Houston Avenue and East of 11th Avenue. The City's wastewater

system also pursues water conservation strategies to ensure the long-term reuse of treated disinfected wastewater to reduce the need for groundwater.

Discussion

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?

The City provides water, wastewater and stormwater services to the community. The proposed Project would result in new water services connecting to.an existing City water line located in 9¼ Avenue adjacent to the Project. Sewer service will be provided from an existing main trunk line located in 9th Avenue, south of the Project. Storm drain services will be provided by a permanent storm basin that will be located on-site. The proposed Project does not include a change in land use designation that would result in a significant increase or change in water, wastewater and stormwater services than planned in the 2035 General Plan or the City infrastructure master plans.

Southern California Edison provides electric service to the City. Natural gas service is primarily provided by the Southern California Gas Company. There are three major companies that provide communications services: AT&T, Sprint, and Verizon. Comcast is the primary cable television and internet provider in Kings County. With the Project, new service for all utilities will be constructed into the proposed subdivision.
It is not anticipated that implementation of the proposed Project would result in increased demand for any utility services beyond the planned conditions. Impacts are therefore considered ***less than significant***.

Mitigation Measures: None Required

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

See discussion in Section 4.10 Hydrology and Water Quality. As stated in the Water Supply Assessment (see Appendix F), the City has sufficient water supply to service the Project, therefore impacts are considered ***less than significant.***

Mitigation Measures: None Required

c) Would the project result in a determination by the wastewater treatment provider which serves ormay serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Wastewater generated by the Project would be collected and treated at the City's domestic Wastewater Treatment Facilities (WWTF). Although the proposed Project will increase in wastewater generation due to the addition of 650 residential units and the commercial site, commercial and residential development at the Project Site has been planned and accounted for in the City's infrastructure planning documents. City staff has determined that the wastewater produced would not exceed the City's WWTF capacity, therefore, the impact is ***less than significant.***

Mitigation Measures: None Required

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Disposal services are provided within the City limits by the City of Hanford Refuse Division. The Project will result in the generation of additional solid waste typical of residential and commercial uses. It has been determined by City staff that the City has the capacity to serve the Project Site and the proposed uses. Because the City's existing infrastructure has the capacity to accommodate the solid waste currently planned in the General Plan for expanded population, it can be inferred that the existing solid waste infrastructure has adequate capacity to serve the proposed Project. The Project would not generate solid waste in excess of State or Local Standards and there is ***no impact.***

Mitigation Measures: None Required

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

See d. above. This proposed Project conforms to all applicable statutes and regulations related to solid waste disposal. The proposed Project will comply with the adopted policies related to solid waste, and will comply with all applicable federal, state, and local statutes and regulations pertaining to disposal of solid waste, including recycling. Therefore, the proposed Project would have ***no impact***.

Mitigation Measures: None Required

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

Regulatory Setting

a), b), c), d): According to the Kings County Multi-Jurisdictional Hazard Mitigation Plan, the City of Hanford is not at high risk for Wildfires and the City is not in a State responsibility area or classified as a Fire Hazard Severity Zone, as shown on the Kings County Federal, State, and Local Responsibility Severity Zones Map for Kings County. The Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. The Project has been reviewed by the City of Hanford Fire Department to ensure the Project does not impair emergency response or emergency evacuation. As such there is **no impact** to wildfire risk from the Project.

Mitigation Measures: None Required

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a) Does the project have the potential substantially to degrade the quality of the environment, substantially reduce the habitat ofa fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☑	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☑	☐	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The initial study contains analysis of environmental issues that indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated to reduce potential impacts to sensitive biological species and to cultural resources. Implementing these mitigation measures will ensure impacts are ***less than significant with mitigation.***

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

CEQA Guidelines Section 15064(h) states that a Lead Agency shall consider whether the cumulative impact of a Project is significant and whether the effects of the Project are cumulatively considerable. The significance of the cumulative effects of a Project must, therefore, be assessed in connection with the effects of past projects, other current projects, and probable future projects.

As described in the impact analyses in sections of this IS/MND, any potentially significant impacts of the Project would be reduced to a less-than-significant level following incorporation of the mitigation measures. A review of major projects found of the City of Hanford website show that all major projects are planned on the west and northwest areas of Hanford. It does not appear that there are any projects within the vicinity, with exception of the future Heros Park. Any future projects in the vicinity of the Project Site would be subject to review in separate environmental documents and required to conform to the General Plan and the Hanford Municipal Code.

As currently designed and with compliance with the recommended mitigation measures, the proposed Project would not be cumulative. Thus, the cumulative impacts of past, present, and reasonably foreseeable future projects would be less than cumulatively considerable. Impacts would be **less than significant with mitigation.**

c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

The Initial Study analysis indicates that the Project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the Biological Resources, Cultural Resources, Cultural Tribal Resources to reduce potential impacts.

As such, implementation will not cause direct or indirect substantial adverse effects on human beings, impacts are ***less than significant.***

Mitigation Measures:

Mitigation Measure BIO 1 (Construction Timing). If feasible, future construction activities will take place entirely outside of the avian nesting season, defined as February 1 to August 31.

Mitigation Measure BIO 2 (Preconstruction Surveys). If construction must occur between February 1 and August 31, a qualified biologist will conduct surveys for active bird nests within 7 days prior to the start of work during this period. The survey area will encompass the site and accessible surrounding lands within ¼ mile for nesting Swainson's hawks, 500 feet for other nesting raptors, 300 feet for the tricolored blackbird, and 250 feet for other nesting birds.

Mitigation Measure BIO 3 (Avoidance of Active Nests). Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Mitigation Measure CUL-1: In the event of accidental discovery of unidentified archaeological remains during development or ground disturbing activities in the Project area, all work shall be halted in immediate vicinity (within a 100-foot radius) until a qualified archaeologist can identify the discovery and assess its significance.

Mitigation Measure CUL 2: If human remains are uncovered during construction, work shall be halted, and the Kings County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and California Public Resources Code 5097.98 require that the coroner notify the Native American Heritage Commission (NAHC) within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will make recommendations regarding the treatment and disposition of the remains.

Mitigation Measure CUL 3 A burial Treatment Plan shall be entered into by the Project applicant/property owner prior to any ground disturbing activities.

LIST OF PREPARERS

DR Mata Consulting

Padre and Associates (Air Quality)

Live Oak Associates (Biology)

Taylored Archaeology (Cultural)

Paul Humphry (Hazards)

C2 Consulting (Traffic)

LSA (VMT)

Wallace Group (Water)

MITIGATION MONITORING AND REPORTING PROGRAM

As required by Public Resources Code Section 21081.6, subd. (a)(1), a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Project in order to monitor the implementation of the mitigation measures that have been adopted for the Project. This Mitigation Monitoring and Reporting Program (MMRP) has been created based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Copper Ridge Subdivision proposed by Quest Equity LLC in the City of Hanford.

The first column of the table identifies the mitigation measure. The second column names the party responsible for carrying out the required action. The third column, "Timing of Mitigation Measure" identifies the time the mitigation measure should be initiated. The fourth column, "Responsible Party forMonitoring," names the party ensuring that the mitigation measure is implemented. The last column willbe used by the City of Hanford to ensure that the individual mitigation measures have been monitored.

Plan checking and verification of mitigation compliance shall be the responsibility of the City of Hanford.

MITIGATION MEASURE	RESPONSIBLE PARTY FOR IMPLEMENTATION	IMPLEMENTATION TIMING	RESPONSIBLE PARTY FOR MONITORING	VERIFICATION
Biological Resources				
Mitigation Measure BIO 1 (Construction Timing). If feasible, future construction activities will take place entirely outside of the avian nesting season, defined as February 1 to August 31.	Applicant Developer Builder	Ongoing	City of Hanford	
Mitigation Measure BIO 2 (Preconstruction Surveys). If construction must occur between February 1 and August 31, a qualified biologist will conduct surveys for active bird nests within 7 days prior to the start of work during this period. The survey area will encompass the site and accessible surrounding lands within ¼ mile for nesting Swainson's hawks, 500 feet for other nesting raptors, 300 feet for the tricolored blackbird, and 250 feet for	Applicant Developer Builder	7 days prior to construction	City of Hanford	

other nesting birds.				
Mitigation Measure BIO 3 (Avoidance of Active Nests). Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.	Applicant Developer Builder	Ongoing	City of Hanford	
Cultural Resources				
Mitigation Measure CUL-1: In the event of accidental discovery of unidentified archaeological remains during development or ground disturbing activities in the Project area, all work shall be halted in immediate vicinity (within a 100-foot radius) until a qualified archaeologist can identify the discovery and assess its significance.	Applicant/ Construction Contractor	Ongoing during construction	City of Hanford	
Mitigation Measure CUL 2: If human remains are uncovered during construction, work shall be halted, and the Kings County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains	Applicant/ Construction Contractor	Ongoing during construction	City of Hanford	

are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and California Public Resources Code 5097.98 require that the coroner notify the Native American Heritage Commission (NAHC) within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will make recommendations regarding the treatment and disposition of the remains.				
Mitigation Measure CUL 3 A burial Treatment Plan shall be entered into by the Project applicant/property owner prior to any ground disturbing activities.	Applicant Construction Contractor	Prior to ground disturbing activities	City of Hanford	

Supporting Information and Sources

1. City of Hanford General Plan Background Report. March 2014. Website 2035 General Plan Background Report (PDF).pdf
2. City of Hanford General Plan Policy Document. April 2017. WEbsite 2035 General Plan Policy Document (PDF).pdf
3. City of Hanford General Plan Environmental Impact Report 2014. April 2017. Available at Hanford City Hall (Hard Copy Only)
4. City of Hanford General Plan Air Quality Element. July 2010; Website Air Quality Element Draft - Section 1 (PDF).pdf
5. City of Hanford Zoning Ordinance. June 2017. Website City of Hanford, CA Table of Contents
6. City of Hanford VMT Thresholds and Implementation Guidelines. November 2022. Website City of Hanford VMT Thresholds and Implementation Guidelines_11-10-2022.pdf
7. City of Hanford 2020 Urban Water Master Plan. December 2021. Website 2020 Urban Water Management Plan (PDF).pdf
8. 2023 Kings County Multi-Jurisdiction Hazard Mitigation Plan, February 2024; available at Kings County_MJHMP_Final_Draft_2.26.24.pdf
9. Kings County Regional Climate Action Plan. May 2014. Available at Regional Climate Action Plan (PDF).pdf
10. Kings County Airport Land Use Plan. 1994. Website Kings County airport land use compatibility plan.pdf
11. California Department of Conservation Farmland Mapping and Monitoring Program. Website DLRP Important Farmland Finder
12. SJVAPCD Regulations and Guidelines
13. California Air Resources Board's (CARB's) Air Quality and Land Use Handbook. 2005. Website Land Use Handbook_0.pdf
14. San Joaquin Valley Air Pollution Control District. 2009. Guidance for Land Use Agencies in Addressing Greenhouse Gas Emission Impacts for New Projects Under CEQA. Website gamaqi.pdf
15. California Building Code (2022) Website City of Hanford, CA Buildings and Construction
16. California Energy Commission. 2019 Building Energy Efficiency Standards. Website 2019 Building Energy Efficiency Standards
17. Department of Toxic Substance Control Envirostar. Website EnviroStor
18. California State Water Resources Control Board. Stormwater Pollution Prevention Program (SWPPP) Website Construction Stormwater Program | California State Water Resources Control Board
19. United States Census Bureau (2020). Website U.S. Census Bureau QuickFacts: Hanford city, California
20. United States Department of Agriculture Web Soil Survey and Soils Descriptions. Website Web Soil Survey
21. California Environmental Quality Act CEQA Guidelines. Website CEQA Guidelines - Office of Land Use and Climate Innovation

Appendix A

Early Consultation Letters

JANUARY 13, 2025

VIA EMAIL: GMYERS@HANFORDCA.GOV
GABRIELLE MYERS, SENIOR PLANNER
CITY OF HANFORD
COMMUNITY DEVELOPMENT DEPARTMENT
317 N. DOUTY STREET
HANFORD, CA 93230

Dear Ms. Myers:

EARLY CONSULTATION FOR THE COPPER RIDGE RESIDENTIAL AND COMMERCIAL PROJECT, SCH# 2024121093

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Early Consultation for the Copper Ridge Residential and Commercial Project (Project).

The Division monitors and maps farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. Public Resources Code, section 614, subdivision (b) authorizes the Department to provide soil conservation advisory services to local governments, including review of CEQA documents.

Protection of the state's agricultural land resources is part of the Department's mission and central to many of its programs. The CEQA process gives the Department an opportunity to acknowledge the value of the resource, identify areas of Department interest, and offer information on how to assess potential impacts or mitigation opportunities.

The Department respects local decision-making by informing the CEQA process, and is not taking a position or providing legal or policy interpretation.

We offer the following comments for consideration with respect to the project's potential impacts on agricultural land and resources within the Department's purview.

PROJECT ATTRIBUTES

The proposed Project consists of a proposed 650-unit multi-family (300 units) and single-family (350 units) residential subdivision and a 5.45-acre Neighborhood Mixed Use site on approximately 83.61 acres). The residential subdivision consists of 650-unit multi-family (300 units) and single-family (350 units) proposed to be developed over five phases and the commercial portion to be developed in a fifth phase.

The Project site contains Prime Farmland, and Farmland of Statewide Importance as designated by DOC's Farmland Mapping and Monitoring Program, and a portion of the project site is subject to a Williamson Act contract.

PROJECT CONSIDERATIONS

The conversion of agricultural land represents a permanent reduction and impact to California's agricultural land resources. The Department generally advises discussion of the following in any environmental review for the loss or conversion of agricultural land:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Implementation of any City or County Agricultural Mitigation Plans, Programs, or Policies.
- Proposed mitigation measures for impacted agricultural lands within the proposed project area.
- The project's compatibility with lands within an agricultural preserve and/or enrolled in a Williamson Act contract.

WILLIAMSON ACT

Where, as here, the project site is located on land subject to a Williamson Act contract, the Department advises that the environmental review discuss the compatibility of the project with the contract and local Williamson Act program requirements.

MITIGATING AGRICULTURAL LAND LOSS OR CONVERSION

Consistent with CEQA Guidelines, the Department advises that the environmental review address mitigation for the loss or conversion of agricultural land. An agricultural conservation easement is one potential method for mitigating loss or conversion of agricultural land. (*See* Cal. Code Regs., tit. 14, § 15370 [mitigation includes "compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."]; *see also King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814.)

Mitigation through agricultural conservation easements can take at least two forms: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural easements. The conversion of agricultural land may be

viewed as an impact of at least regional significance. Hence, the search for replacement lands may not need to be limited strictly to lands within the project's surrounding area. A helpful source for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

California Council of Land Trusts

Of course, the use of conservation easements is only one form of mitigation, and the Department urges consideration of any other feasible measures necessary to mitigate project impacts.

Thank you for giving us the opportunity to comment on the Early Consultation for the Copper Ridge Residential and Commercial Project. Please provide the Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

Department of Toxic Substances Control

Yana Garcia
Secretary for
Environmental Protection

Katherine M. Butler, MPH, Director
8800 Cal Center Drive
Sacramento, California 95826-3200
dtsc.ca.gov

Gavin Newsom
Governor

SENT VIA ELECTRONIC MAIL

December 27, 2024

Gabrielle Myers
Senior Planner
City of Hanford
317 N Douty St
Hanford, CA 93230
gmyers@hanfordca.gov

RE: REQUEST FOR EARLY CONSULTATION FOR THE COPPER RIDGE RESIDENTIAL AND COMMERCIAL PROJECT DATED DECEMBER 23, 2024, STATE CLEARINGHOUSE NUMBER 2024121093

Dear Gabrielle Myers,

The Department of Toxic Substances Control (DTSC) reviewed the Request for Early Consultation (CON) for the Copper Ridge Residential and Commercial Project (Project). The Project consists of a proposed 650-unit residential subdivision (300- multi-family units and 350-single-family units) and a 5.45-acre Neighborhood Mixed Use site on approximately 83.61 acres. The residential subdivision is proposed to be developed over five phases and the commercial portion to be developed in the fifth phase. The southern portion of the project site, located at APN 014-143-078-000 is currently vacant, but has been graded and was formerly utilized for agricultural crop production. The northern portion of the project site, located on APN 014-143-069-000, is in agricultural production. DTSC recommends and requests consideration of the following comments:

1. When agricultural crops and/or land uses are proposed or rezoned for residential use, a number of contaminants of concern (COCs) can be present. The Lead Agency shall identify the amounts of Pesticides and Organochlorine

Pesticides (OCPs) historically used on the property. If present, OCPs requiring further analysis are dichloro-diphenyl-trichloroethane, toxaphene, and dieldrin. Additionally, any level of arsenic present would require further analysis and sampling and must meet HHRA NOTE NUMBER 3, DTSC-SLs approved thresholds. If they are not, remedial action must take place to mitigate them below those thresholds.

Additional COCs may be found in mixing/loading/storage areas, drainage ditches, farmhouses, or any other outbuildings and should be sampled and analyzed. If smudge pots had been routinely utilized, additional sampling for Polycyclic Aromatic Hydrocarbons and/or Total Petroleum Hydrocarbons may be required.

2. DTSC recommends that all imported soil and fill material should be tested to assess any contaminants of concern meet screening levels as outlined in DTSC's Preliminary Endangerment Assessment (PEA) Guidance Manual. Additionally, DTSC advises referencing the DTSC Information Advisory Clean Imported Fill Material Fact Sheet if importing fill is necessary. To minimize the possibility of introducing contaminated soil and fill material there should be documentation of the origins of the soil or fill material and, if applicable, sampling be conducted to ensure that the imported soil and fill material are suitable for the intended land use. The soil sampling should include analysis based on the source of the fill and knowledge of prior land use. Additional information can be found by visiting DTSC's Human and Ecological Risk Office (HERO) webpage.

DTSC appreciates the opportunity to comment on the CON for the Copper Ridge Residential and Commercial Project. Thank you for your assistance in protecting California's people and environment from the harmful effects of toxic substances. If you have any questions or would like clarification on DTSC's comments, please respond to this letter or via email for additional guidance.

Sincerely,

Dave Kereazis
Associate Environmental Planner
HWMP-Permitting Division – CEQA Unit
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

cc: (via email)

Governor's Office of Land Use and Climate Innovation
State Clearinghouse
State.Clearinghouse@opr.ca.gov

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Scott.Wiley@dtsc.ca.gov

Appendix B

Air Quality Assessment Memo

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

MEMORANDUM

To: N&M Capital LLC **Project Number**: 2402-3001

From: Robert Vander Weele

Date: March 20, 2025

Subject: Construction and Operational Phase Air Quality and Greenhouse Gas Emissions Estimates for the Proposed Copper Ridge Subdivision and Commercial Development, Hanford, Kings County, California

Padre Associates, Inc. (Padre) has prepared this revised Memorandum to document the results of the criteria pollutant and greenhouse gas (GHG) estimates for the construction and operational phase of the Proposed Copper Ridge Subdivision and Commercial Development Project (Project). The Project consists of the construction of 658 housing units and a commercial shopping center with two fast food restaurants, two general retail stores, and one gasoline/diesel fueling station with an associated mini mart. The residential construction phase is proposed to take place over four years and the commercial construction phase is proposed to take place over three years. The commercial construction phase will be completed after the residential construction phase has been completed.

Emissions Estimate Methods and Assumptions

Emissions modeling was conducted to estimate the criteria pollutant and GHG emissions for the construction and operational phase of the Project. The emissions were estimated using the most recent emission factors and load factors obtained from the California Emissions Estimator Model® (CalEEMod) User's Guide, Emission Factors (EMFAC) model, the South Coast Air Quality Management District (SCAQMD) and U.S. Environmental Protection Agency (U.S. EPA)

Construction Emissions Estimate Results Summary

Based on the Project construction schedule (i.e., four years of residential construction followed by three years of commercial construction), criteria pollutant emissions for the Project were estimated to be well below the San Joaquin Valley Air Pollution Control District's (SJVAPCD) significance thresholds (refer to Table 1 below). The primary sources of particulate matter of 10 microns in diameter or less (PM_{10}) and particulate matter 10 microns or less ($PM_{2.5}$) emissions were fugitive dust from grading activities and vehicles traveling on paved roads (refer to Table 2 below). Diesel particulate matter (DPM) from the use of onsite diesel-powered equipment was estimated to be less than 0.002 tons per year for both residential and commercial construction phases (refer to Table 2 below). Emissions estimate tables are provided as an attachment.

Table 1. Estimated Construction Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2
Residential Year 1	Tons/yr	0.533	0.055	2.80	0.454	1.42	0.006
Residential Year 2	Tons/yr	0.533	0.055	2.80	0.454	1.42	0.006
Residential Year 3	Tons/yr	0.533	0.055	2.80	0.454	1.42	0.006
Residential Year 4	Tons/yr	0.533	0.055	2.80	0.454	1.42	0.006
Commercial Year 1	Tons/yr	0.158	0.015	0.589	0.145	0.532	0.002
Commercial Year 2	Tons/yr	0.158	0.015	0.589	0.145	0.532	0.002
Commercial Year 3	Tons/yr	0.158	0.015	0.589	0.145	0.532	0.002
SJVAPCD Significance Threshold (tons/year)		**10**	**10**	**10**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**

Table 2. Estimated Construction Particulate and DPM Emissions

Phase	Units	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$
Residential Year 1	Tons/yr	0.008	2.80	2.80	0.008	0.447	0.454
Residential Year 2	Tons/yr	0.008	2.80	2.80	0.008	0.447	0.454
Residential Year 3	Tons/yr	0.008	2.80	2.80	0.008	0.447	0.454
Residential Year 4	Tons/yr	0.008	2.80	2.80	0.008	0.447	0.454
Commercial Year 1	Tons/yr	0.002	0.586	0.589	0.002	0.142	0.145
Commercial Year 2	Tons/yr	0.002	0.586	0.589	0.002	0.142	0.145
Commercial Year 3	Tons/yr	0.002	0.586	0.589	0.002	0.142	0.145
Residential DPM Emissions from Onsite Equipment, Tons/yr*						0.0018	
Commercial DPM Emissions from Onsite Equipment, Tons/yr*						0.0014	

Notes: * - Mobile emissions emitted at offsite locations are not included in this DPM total.
Suffixes E = Exhaust, D= Dust, and T = Total.

GHG emissions for the Project were estimated to be approximately 541 metric tons of carbon dioxide equivalent per year ($MTCO_2E$/year) for residential construction and 149 $MTCO_2E$/year per year for commercial construction (refer to Table 3 below).

Table 3. Estimated Construction Related Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E/yr$
Residential Year 1	Tons/yr	0.054	0.056	579	541
Residential Year 2	Tons/yr	0.054	0.056	579	541
Residential Year 3	Tons/yr	0.054	0.056	579	541
Residential Year 4	Tons/yr	0.054	0.056	579	541
Total Residential	**Tons**	**0.216**	**0.224**	**2,318**	**2,162**
Commercial Year 1	Tons/yr	0.012	0.022	160	149
Commercial Year 2	Tons/yr	0.012	0.022	160	149
Commercial Year 3	Tons/yr	0.012	0.022	160	149
Total Commercial	**Tons**	**0.035**	**0.066**	**480**	**446**

Notes: Total emissions numbers may not add up due to rounding.

Construction Phase – Information and Assumptions

- All construction equipment type, horsepower, EPA Tier, hourly use and daily use were provided by N&M Capital LLC (N&M) or estimated by Padre.
- Equipment, supplies, fueling, personnel, import and export vehicle trips were provided by N&M or estimated by Padre.
- Site grading, loading/dumping and import/export volumes were provided by N&M.
- Emissions for residential construction Year 2, 3, and 4 were calculated using a similar construction schedule as Year 1 (largest phase of the Project) to provide the most conservative emissions estimates.
- Emissions for commercial construction Year 2 and 3 were calculated using a similar construction schedule as Year 1 (largest phase of the Project) to provide the most conservative emissions estimates. The gasoline/diesel service station was assumed to be constructed during Year 3.

Detailed source information is provided in the attachments.

Operational Emissions Estimate Results Summary

Criteria pollutant emissions for the Project operational activities were estimated to be below the SJVAPCD significance thresholds (refer to Table 4 below). Mobile emissions were estimated to be the primary source of criteria pollutant emissions for residential and commercial operations. The primary source of PM_{10} and $PM_{2.5}$ emissions were from fugitive dust from vehicles traveling on paved roads (Refer to Table 5 below). DPM from the use of onsite diesel sources was estimated to be less than 0.002 tons per year for both residential and commercial operations (refer to Table 5 below).

Table 4. Estimated Operational Criteria Pollutant Emissions

Phase	Units	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2
Residential Operational Phase without Resident Vehicle Emissions	Tons/yr	0.044	0.102	0.002	0.001	5.14	0.0003
Residential Operational Phase with Resident Vehicle Emissions	Tons/yr	0.677	0.120	8.89	2.25	12.4	0.054
Total Residential Operational Phase Emissions	**Tons/Yr**	**0.722**	**0.221**	**8.90**	**2.25**	**17.6**	**0.055**
Commercial Operational Phase without Customer Vehicle Emissions	Tons/yr	0.076	0.201	0.002	0.002	7.74	0.0004
Commercial Operational Phase with Customer Vehicle Emissions	Tons/yr	0.524	0.065	4.24	1.08	6.61	0.033
Total Commercial Operational Phase Emissions	Tons/yr	**0.600**	**0.267**	**4.24**	**1.08**	**14.4**	**0.033**
SJVAPCD Significance Threshold (Tons/yr)		**10**	**10**	**15**	**15**	**100**	**27**
Exceed Thresholds?		**No**	**No**	**No**	**No**	**No**	**No**

Notes: Total emissions numbers may not add up due to rounding.

Table 5. Estimated Operational Particulate and DPM Emissions

Phase	Units	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$
Residential Operational Phase without Resident Vehicle Emissions	Tons/yr	0.00004	0.002	0.002	0.0004	0.0005	0.001
Residential Operational Phase with Resident Vehicle Emissions	Tons/yr	0.005	8.89	8.89	0.022	2.23	2.25
Total Residential Operations Emissions	**Tons/Yr**	**0.005**	**8.89**	**8.90**	**0.022**	**2.23**	**2.25**
Commercial Operational Phase without Customer Vehicle Emissions	Tons/yr	0.0016	0.000	0.002	0.002	0.000	0.002
Commercial Operational Phase with Customer Vehicle Emissions	Tons/yr	0.015	4.22	4.24	0.014	1.06	1.08
Total Commercial Operations Emissions	**0.780**	**0.017**	**4.22**	**4.24**	**0.016**	**1.06**	**1.08**
Residential DPM Emissions from Onsite Diesel Sources, tons per year*							0.0005
Commercial DPM Emissions from Onsite Diesel Sources, tons per year*							0.0003

Notes: * - Mobile emissions emitted at offsite locations are not included in this DPM total.
Suffixes E = Exhaust, D= Dust, and T = Total.
Total emissions numbers may not add up due to rounding.

Total GHG operational phase plus amortized construction phase emissions were estimated to be approximately 5,658 $MTCO_2E$/year for the residential Project and 3,163

$MTCO_2E$/year per year for the commercial Project (refer to Table 6 below). Mobile emissions were estimated to be the primary source of GHG emissions.

Table 6. Estimated Operational Greenhouse Gas Emissions

Phase	Unit	N_2O	CH_4	CO_2	$MTCO_2E$/yr
Residential Operational Phase without Resident Vehicle* Emissions	Tons/yr	0.013	0.229	609	561
Residential Operational Customer with Resident Emissions	Tons/yr	0.120	0.031	5,505	5,024
Total Operations Emissions	**Tons**	**0.133**	**0.260**	**6,113**	**5,586**
Commercial Operations Phase without Customer Vehicle* Emissions	Tons/yr	0.0005	1.22	73.5	97.8
Commercial Operations Phase with Customer Vehicle Emissions	Tons/yr	0.128	0.016	3,327	3,050
Total Operations Emissions	**Tons**	**0.129**	**1.24**	**3,400**	**3,148**
Total Residential Operational Phase Plus Amortized Construction Phase Emissions $MTCO_2E$/year*					**5,658**
Total Commercial Operational Phase Plus Amortized Construction Phase Emissions $MTCO_2E$/year*					**3,163**

Notes: * - Construction GHG emissions were amortized over 30 years.
Total emissions numbers may not add up due to rounding.

Operational Phase – Information and Assumptions

- Operations are assumed to be seven days per week.
- Resident and customer vehicle emissions were calculated based on estimated new daily traffic provided by C2 Consult Corp (C2) of Denver, Colorado and the estimated vehicle miles traveled (VMT) provided by LSA of Riverside, California. (refer to attachments for daily traffic and VMT information).

Detailed source information is provided in the attachments.

Health Risk Prioritization Screening

Using the Project construction and operational emissions estimates, Padre completed a health risk prioritization screening of the Project's residential and commercial construction and operational phase DPM emissions using the SJVAPCD's Prioritization Calculator. The Prioritization Calculator utilizes toxic profiles based on Assembly Bill (AB) 2588 Hotspots Air Toxic Profiles and estimated Project emissions to calculate a prioritization score between 0 and 100 for cancer risk, acute toxicity risk, and chronic toxicity risk. In accordance with the Air Toxics Hot Spots Program, Facility Prioritization Guidelines and SJVAPCD APR- 1906 Framework for Performing Health Risk Assessments, a facility or project with a prioritization score between 0 and less than 10 would not be required to perform a Health Risk Assessments (HRA) and would have a less than significant impact.

The nearest sensitive receptors to the Project site consist of residential homes on adjacent properties within 0 to 100 meters to the west and south of the Project site, and

northwest adjacent Hamilton Elementary School. In addition, the screening also considers the newly constructed residential development as sensitive receptors after each phase of residential construction has been completed. The prioritization screening evaluated the impacts to receptors for the estimated onsite Project DPM emissions associated with the construction phases and onsite DPM emissions associated with the operational phases (refer to Tables 2 and 5 above). The table below summarizes the maximum prioritization scores for all years of construction and the full operational phase on completion of construction.

Table 7. Results of Prioritization Screening

Phase	Receptor Proximity				
	0 to 100 (m)	100 to 250 (m)	250 to 500 (m)	500 to 1,000 (m)	1,000 to 1,500 (m)
Residential Construction Year 1	8.32	2.08	0.333	0.091	0.025
Residential Construction Year 2	8.87	2.22	0.355	0.098	0.027
Residential Construction Year 3	9.42	2.36	0.377	0.104	0.028
Residential Construction Year 4	9.98	2.49	0.399	0.110	0.030
Residential Operational Only	2.22	0.55	0.089	0.024	0.007
Commercial Construction Year 1	8.64	2.16	0.346	0.095	0.026
Commercial Construction Year 2	9.10	2.28	0.364	0.100	0.027
Commercial Construction Year 3	9.56	2.39	0.383	0.105	0.029
Residential and Commercial Operational Only	6.95	1.74	0.278	0.076	0.021

None of the prioritization scores exceed 10 therefore an HRA would not be required by the SJVAPCD. A copy of the prioritization screening calculations is provided in the attachments.

Attachments: Air Quality and Greenhouse Gas Emissions Model Output
Email Correspondence with C2 Consult Corp
Prioritization Screening Calculations

Air Quality and Greenhouse Gas Emissions Model Output

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 1: CONSTRUCTION EMISSIONS SUMMARY

Model Run: January 15, 2025

Source	Days	Peak Day Emissions, lbs/day													Project Emissions, tons												$MTCO_2e$
		NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	
Grading	13	5.33	0.751	0.151	23.5	23.6	0.149	5.07	5.22	29.1	0.094	0.609	1.84	9,297	0.031	0.005	0.001	0.134	0.135	0.001	0.029	0.030	0.189	0.001	0.003	0.012	55.2	51.1
Utilities	115	4.44	0.410	0.084	13.3	13.3	0.082	3.21	3.29	17.3	0.054	0.398	0.777	5,339	0.180	0.023	0.003	0.355	0.358	0.003	0.082	0.085	0.990	0.002	0.004	0.045	188	173
Vertical Construction	120	5.90	0.155	0.090	31.0	31.1	0.087	7.75	7.84	4.28	0.066	0.975	0.088	6,807	0.214	0.008	0.002	1.112	1.115	0.002	0.277	0.279	0.249	0.002	0.024	0.005	191	179
Flatwork and Paving	4	9.31	2.97	0.176	30.7	30.9	0.171	7.56	7.73	26.8	0.110	1.08	1.34	11,172	0.019	0.006	0.000	0.061	0.062	0.000	0.015	0.015	0.054	0.000	0.002	0.003	22.3	20.8
Interior Finishing	22	2.95	0.215	0.041	9.77	9.81	0.040	2.45	2.49	9.01	0.028	0.234	0.108	2,784	0.022	0.002	0.0002	0.068	0.069	0.000	0.017	0.017	0.080	0.0002	0.001	0.001	16.4	15.1
Exterior Finishing	8	2.50	0.236	0.039	9.77	9.81	0.038	2.45	2.49	8.35	0.027	0.233	0.098	2,692	0.008	0.001	0.0001	0.028	0.028	0.0001	0.007	0.007	0.033	0.0001	0.000	0.000	7.6	7.0
Peak Day Emissions, lb/day		***9.31***	***2.97***	***0.176***	***31.0***	***31.1***	***0.17***	***7.75***	***7.84***	***29.1***	***0.110***	***1.081***	***1.84***	***11,172***	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Year -1 Emissions, tons															***0.158***	***0.015***	***0.002***	***0.586***	***0.589***	***0.002***	***0.142***	***0.145***	***0.532***	***0.002***	***0.012***	***0.022***	***160***	***149***
Project Year -2 Emissions, tons															***0.158***	***0.015***	***0.002***	***0.586***	***0.589***	***0.002***	***0.142***	***0.145***	***0.532***	***0.002***	***0.012***	***0.022***	***160***	***149***
Project Year -3 Emissions, tons															***0.158***	***0.015***	***0.002***	***0.586***	***0.589***	***0.002***	***0.142***	***0.145***	***0.532***	***0.002***	***0.012***	***0.022***	***160***	***149***
SJVAPCD Significance Thresholds															***10***	***10***	--	--	***15***	--	--	***15***	***100***	***27***	--	--	--	--
Threshold exceeded?															***No***	***No***	--	--	***No***	--	--	***No***	***No***	***No***	--	--	--	--
Project Total Emissions, tons															***0.474***	***0.045***	***0.007***	***1.76***	***1.77***	***0.007***	***0.427***	***0.434***	***1.59***	***0.005***	***0.035***	***0.066***	***480***	***446***
Project Year -1 DPM Emissions From Onsite Equipment, tons															***0.00139***	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Year -2 DPM Emissions From Onsite Equipment, tons															***0.00139***	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Year -3 DPM Emissions From Onsite Equipment, tons															***0.00139***	--	--	--	--	--	--	--	--	--	--	--	--	--
Total DPM Emissions From Onsite Equipment, tons															***0.00417***	--	--	--	--	--	--	--	--	--	--	--	--	--
GHG - $MTCO_2e$ conversions																									***273***	***27.9***	***1***	--
Approximate Total $MTCO_2e$, tons/yr																									***446***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

SJVAPCD - San Joaquin Valley Air Pollution Control District
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalent
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
DPM - Diesel Particulate Matter
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide
* - Includes emissions from on road vehicles operating offsite and away from adjacent sensitive receptors.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Grading

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	4	13	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.106	0.024	0.003	0.003	1.509	0.002	0.002	0.0620	191	0.001	0.000	0.000	0.000	0.010	0.000	0.000	0.000	1.24
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	8	13	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.282	0.065	0.009	0.009	4.013	0.005	0.005	0.1681	519	0.002	0.000	0.000	0.000	0.026	0.000	0.000	0.001	3.37
Lift-1	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	6	13	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.002	0.000	0.000	0.000	0.017	0.000	0.000	0.001	3.64
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	8	13	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.007	0.002	0.000	0.000	0.058	0.000	0.000	0.004	12.32
Scraper-2	475	48	1	8	13	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.007	0.002	0.000	0.000	0.058	0.000	0.000	0.004	12.32
Water Truck-1	400	38	1	4	13	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.002	0.001	0.000	0.000	0.019	0.000	0.000	0.001	4.14
														Total	**3.137**	**0.72**	**0.10**	**0.097**	**28.783**	**0.060**	**0.051**	**1.840**	**5698**	**0.020**	**0.005**	**0.001**	**0.001**	**0.187**	**0.000**	**0.000**	**0.012**	**37.04**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	13	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.383
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	13	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.122
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.648	0.006	0.015	0.015	0.034	0.010	0.159	0.000	1007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.007
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.336
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.295	0.012	0.031	0.029	0.068	0.019	0.317	0.001	2014	0.010	0.000	0.000	0.000	0.001	0.000	0.002	0.000	15.107
														Total	**2.20**	**0.03**	**0.05**	**0.05**	**0.31**	**0.034**	**0.559**	**0.002**	**3599**	**0.011**	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	**0.003**	**0.000**	**18.13**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	13	5.1564	1.2895	1.136774	0.284273857	0.007389	0.001848
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	13	5.1573	1.2898	3.410906	0.853026465	0.022171	0.005545
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	2	5.2221	1.3125	3.453822	0.868047129	0.003454	0.000868
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	4	5.2221	1.3125	0.575637	0.144674521	0.001151	0.000289
Heavy Duty Trucks - T7TC (offsite)	1	1	12	50	15	5.2221	1.3125	6.907645	1.736094258	0.051807	0.013021
							Total	**16.117709**	**4.045162**	**0.086605**	**0.021730**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 3: Utilities

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	115	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.009	0.002	0.0003	0.0003	0.130	0.000	0.000	0.005	16.51
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	4	115	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.006	0.001	0.0002	0.0002	0.090	0.000	0.000	0.001	13.83
Compressor-2	100	48	1	4	115	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.006	0.001	0.0002	0.0002	0.090	0.000	0.000	0.001	13.83
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	4	115	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.139	0.032	0.004	0.004	1.984	0.003	0.002	0.0820	253	0.008	0.002	0.0002	0.0002	0.114	0.000	0.000	0.005	14.56
Generator-1	25	74	1	8	115	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.052	0.002	0.0002	0.0002	0.077	0.000	0.000	0.001	10.66
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	115	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.021	0.001	0.0001	0.0001	0.028	0.000	0.000	0.001	4.00
Lift-2	50	20	1	6	115	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.021	0.001	0.0001	0.0001	0.028	0.000	0.000	0.001	4.00
Loader-1	250	36	1	6	115	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.018	0.004	0.0005	0.0005	0.151	0.000	0.000	0.010	32.16
Loader-2	250	36	1	4	115	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.206	0.048	0.006	0.006	1.746	0.004	0.003	0.1206	373	0.012	0.003	0.0004	0.0004	0.100	0.000	0.000	0.007	21.44
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	4	115	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.020	0.005	0.001	0.001	0.170	0.000	0.000	0.012	36.63
														Total	**3.005**	**0.39**	**0.047**	**0.047**	**17.010**	**0.031**	**0.025**	**0.775**	**2915**	**0.173**	**0.022**	**0.003**	**0.003**	**0.978**	**0.002**	**0.001**	**0.045**	**167.62**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	115	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	3.384
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	115	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.027	0.006	0.003	0.003	0.056	0.002	0.027	0.000	173	0.002	0.000	0.000	0.000	0.003	0.000	0.002	0.000	9.924
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	6	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.203
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.679
														Total	**1.44**	**0.02**	**0.04**	**0.03**	**0.27**	**0.023**	**0.374**	**0.001**	**2424**	**0.007**	**0.000**	**0.000**	**0.000**	**0.011**	**0.000**	**0.003**	**0.000**	**20.73**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	115	5.1564	1.2895	1.136774	0.284273857	0.065364	0.016346
Light-Duty Truck - LDT2 (offsite)	1	1	6	50	115	5.1573	1.2898	3.410906	0.853026465	0.196127	0.049049
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	6	5.1971	1.3037	0.057288	0.014370905	0.000172	0.000043
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	6	5.2221	1.3125	0.575637	0.144674521	0.001727	0.000434
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	31	5.2221	1.3125	1.151274	0.289349043	0.017845	0.004485
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	5.2221	1.3125	5.756371	1.446745215	0.005756	0.001447
							Total	**12.088249**	**3.032440**	**0.286991**	**0.071804**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 4: Vertical Construction

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.0	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Generator-1	25	74	1	8	120	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.054	0.002	0.0002	0.0002	0.080	0.000	0.000	0.001	11.126
Generator-2	25	74	1	8	120	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.054	0.002	0.0002	0.0002	0.080	0.000	0.000	0.001	11.126
Grader	150	41	1	0	120	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Lift-1	50	20	1	6	120	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.022	0.001	0.0001	0.0001	0.029	0.000	0.000	0.001	4.171
Lift-2	50	20	1	6	120	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.509	0.022	0.001	0.0001	0.0001	0.029	0.000	0.000	0.001	4.17
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000
														Total	**2.519**	**0.11**	**0.007**	**0.007**	**3.654**	**0.006**	**0.004**	**0.085**	**510**	**0.151**	**0.007**	**0.000**	**0.000**	**0.219**	**0.000**	**0.000**	**0.005**	**30.59**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	5	50	120	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.018	0.003	0.001	0.000	0.347	0.001	0.002	0.001	147	0.001	0.000	0.000	0.000	0.021	0.000	0.000	0.000	8.828
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	120	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.045	0.010	0.005	0.005	0.093	0.003	0.045	0.000	288	0.003	0.001	0.000	0.000	0.006	0.000	0.003	0.000	17.259
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	120	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.241	0.004	0.004	0.004	0.024	0.010	0.168	0.000	1068	0.014	0.000	0.000	0.000	0.001	0.001	0.010	0.000	64.057
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	6	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.057	0.016	0.264	0.000	1679	0.017	0.000	0.000	0.000	0.001	0.000	0.004	0.000	26.9
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.079	0.010	0.026	0.024	0.06	0.016	0.264	0.000	1679	0.018	0.000	0.000	0.000	0.001	0.000	0.004	0.000	27.696
Heavy Duty Trucks - T7TC (offsite)	1	1	5	35	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.378	0.003	0.009	0.009	0.02	0.006	0.093	0.000	587	0.006	0.000	0.000	0.000	0.000	0.000	0.001	0.000	9.400
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.324	0.003	0.008	0.007	0.017	0.005	0.079	0.000	504	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.504
														Total	**3.38**	**0.05**	**0.08**	**0.08**	**0.63**	**0.060**	**0.971**	**0.003**	**6297**	**0.063**	**0.001**	**0.002**	**0.002**	**0.030**	**0.002**	**0.024**	**0.000**	**160.00**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	5	50	120	5.1564	1.2895	2.841934	0.710684644	0.170516	0.042641
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	120	5.1573	1.2898	5.684844	1.421710775	0.341091	0.085303
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	120	5.1971	1.3037	5.728786	1.437090524	0.343727	0.086225
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	6	5.1971	1.3037	0.057288	0.014370905	0.000172	0.000043
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	32	5.2221	1.3125	5.756371	1.446745215	0.092102	0.023148
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	33	5.2221	1.3125	5.756371	1.446745215	0.094980	0.023871
Heavy Duty Trucks - T7TC (offsite)	1	1	5	35	32	5.2221	1.3125	2.014730	0.506360825	0.032236	0.008102
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	32	5.2221	1.3125	1.151274	0.289349043	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	5.2221	1.3125	1.726911	0.434023564	0.001727	0.000434
							Total	**30.718508**	**7.707081**	**1.094971**	**0.274397**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for concrete delevery estimated from Visalia California (approximatley 35-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 5: Flatwork and Paving

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb./day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.885	4	--	2.600	--	--	--	--	--	--	--	--	2.301	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Architectural Coating	--	--	0	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.57
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	6	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.296	0.068	0.009	0.009	2.503	0.006	0.005	0.1740	539	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	1.08
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	4	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.37
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.14
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.413	0.095	0.013	0.013	3.492	0.008	0.007	0.2413	746	0.001	0.000	0.000	0.000	0.007	0.000	0.000	0.000	1.49
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	2	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.385	0.089	0.012	0.012	5.482	0.007	0.006	0.2252	697	0.001	0.000	0.000	0.000	0.011	0.000	0.000	0.000	1.39
Paving Equipment	100	36	1	8	4	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.165	0.038	0.005	0.005	2.349	0.003	0.003	0.0971	300	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.60
Paving Roller	50	38	2	8	4	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	1.836	0.080	0.005	0.005	2.480	0.003	0.003	0.0536	381	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	8	4	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.697	0.161	0.021	0.021	5.898	0.013	0.011	0.4128	1274	0.001	0.000	0.000	0.000	0.012	0.000	0.000	0.001	2.55
														Total	**5.211**	**2.92**	**0.07**	**0.074**	**26.294**	**0.047**	**0.039**	**1.340**	**4479**	**0.010**	**0.006**	**0.000**	**0.000**	**0.053**	**0.000**	**0.000**	**0.003**	**8.96**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb./day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.460
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.004	0.001	0.000	0.000	0.069	0.000	0.000	0.000	29.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.014	0.003	0.002	0.001	0.028	0.001	0.014	0.000	86	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.173
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	1	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	1.727	0.016	0.041	0.039	0.09	0.025	0.423	0.001	2686	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	5.371
Heavy Duty Trucks - T7TC (offsite)	1	1	2	35	17	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.151	0.001	0.004	0.003	0.01	0.002	0.037	0.000	235	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.997
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.864	0.008	0.020	0.020	0.05	0.013	0.212	0.000	1343	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.686
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.972	0.009	0.023	0.022	0.051	0.014	0.238	0.000	1511	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.511
														Total	**4.10**	**0.05**	**0.10**	**0.10**	**0.52**	**0.063**	**1.042**	**0.003**	**6693**	**0.008**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.002**	**0.000**	**13.30**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	4	5.1564	1.2895	1.136774	0.284273857	0.002274	0.000569
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	4	5.1573	1.2898	4.547875	1.13736862	0.009096	0.002275
Passenger Vehicle - LDA (offsite)	1	1	1	50	4	5.1564	1.2895	0.568387	0.142136929	0.001137	0.000284
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	4	5.1573	1.2898	1.705453	0.426513232	0.003411	0.000853
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	1	5.1971	1.3037	0.057288	0.014370905	0.000029	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	16	50	4	5.2221	1.3125	9.210193	2.314792343	0.018420	0.004630
Heavy Duty Trucks - T7TC (offsite)	1	1	2	35	17	5.2221	1.3125	0.805892	0.20254433	0.006850	0.001722
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	4	5.2221	1.3125	4.605096	1.157396172	0.009210	0.002315
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	5.2221	1.3125	5.180734	1.302070693	0.005181	0.001302
							Total	**29.544602**	**7.415491**	**0.058773**	**0.014752**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for baserock and asphalt delevery estimated from Sanger California (approximatley 80-miles).

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for concrete delevery estimated from Visalia California (approximatley 35-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 6: Interior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	21.0	22	--	50.0	--	--	--	--	--	--	--	--	0.0231	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	22	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.001	0.000	0.000	0.034	0.000	0.000	0.000	5.29
Compressor-2	100	48	1	8	12	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.019	0.000	0.000	0.000	2.89
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	22	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.010	0.000	0.000	0.000	0.015	0.000	0.000	0.000	2.04
Generator-2	25	74	1	4	12	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.449	0.020	0.001	0.001	0.669	0.001	0.001	0.0101	92.7	0.003	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.56
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	22	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**2.149**	**0.20**	**0.02**	**0.019**	**8.761**	**0.014**	**0.010**	**0.107**	**1310**	**0.020**	**0.002**	**0.000**	**0.000**	**0.077**	**0.000**	**0.000**	**0.001**	**11.54**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	22	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.647
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	22	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	2.531
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.168
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.002**	**0.000**	**0.0001**	**0.0001**	**0.002**	**0.000**	**0.001**	**0.0000**	**4.87**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	22	5.1564	1.2895	1.136774	0.284273857	0.012505	0.003127
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	22	5.1573	1.2898	4.547875	1.13736862	0.050027	0.012511
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	2	5.1971	1.3037	0.057288	0.014370905	0.000057	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	5.2221	1.3125	0.575637	0.144674521	0.000576	0.000145
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.068345**	**0.017099**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 7: Exterior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	57.8	8	--	50.0	--	--	--	--	--	--	--	--	0.0637	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	22.000	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	8	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.013	0.000	0.000	0.000	1.92
Compressor-2	100	48	1	8	8	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.001	0.000	0.000	0.000	0.013	0.000	0.000	0.000	1.92
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	8	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.74
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	8	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.28
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**1.700**	**0.22**	**0.02**	**0.017**	**8.092**	**0.013**	**0.009**	**0.097**	**1217**	**0.007**	**0.001**	**0.000**	**0.000**	**0.032**	**0.000**	**0.000**	**0.000**	**4.87**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	8	0.0324	0.0056	0.0009	0.0009	0.630	0.0026	0.0040	0.002	267	0.007	0.001	0.000	0.000	0.139	0.001	0.001	0.000	58.9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.235
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	8	0.0409	0.0088	0.0046	0.0044	0.084	0.0025	0.0411	0.000	261	0.036	0.008	0.004	0.004	0.074	0.002	0.036	0.000	230	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.920
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	1	0.2187	0.0036	0.0041	0.0039	0.021	0.0092	0.1526	0.000	969	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.216	0.002	0.005	0.005	0.011	0.003	0.053	0.000	336	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.108	0.001	0.003	0.002	0.006	0.002	0.026	0.000	168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.9793	0.0090	0.0232	0.0222	0.052	0.0144	0.2399	0.000	1523	0.432	0.004	0.010	0.010	0.023	0.006	0.106	0.000	671	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.671
														Total	**0.80**	**0.02**	**0.02**	**0.02**	**0.25**	**0.014**	**0.224**	**0.001**	**1475**	**0.001**	**0.0000**	**0.0000**	**0.0000**	**0.001**	**0.0000**	**0.000**	**0.0000**	**2.76**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	8	5.1564	1.2895	1.136774	0.284273857	0.004547	0.001137
Light-Duty Truck - LDT2 (offsite)	1	1	8	50	8	5.1573	1.2898	4.547875	1.13736862	0.018191	0.004549
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	1	5.1971	1.3037	0.057288	0.014370905	0.000029	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	5	5.2221	1.3125	1.151274	0.289349043	0.002878	0.000723
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	5.2221	1.3125	0.575637	0.144674521	0.000288	0.000072
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	5.2221	1.3125	2.302548	0.578698086	0.002303	0.000579
							Total	**9.771396**	**2.448735**	**0.028236**	**0.007068**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

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CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 8: Construction - Fugitive Dust Emissions - Phase 1

Construction

Activity	Source	Source Units	Number of Days	Emission Factor	Emission Factor, Units	Peak Day Emissions (lbs/day)		Total Emissions (tons)	
						PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading									
Site Grading	1.4	acres/day	13	1.1	lbs PM10/day/acre	1.4988	0.1363	0.0097	0.0015
Truck Loading & Dumping	231	tons/day	13	1.72E-04	lbs/ton	0.0397	0.0060	0.0003	0.0000
Vehicle Miles Off-Road	5.0	vehicle-miles/day	13	1.17	lbs/vehicle-mile	5.8276	0.8825	0.0379	0.0057
					Max/Total	**7.366**	**1.025**	**0.048**	**0.0073**
Utilities									
Site Grading	0.01	acres/day	115	1.1	lbs PM10/day/acre	0.0110	0.0010	0.0006	0.0001
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	1.0	vehicle-miles/day	115	1.17	lbs/vehicle-mile	1.1655	0.1765	0.0670	0.0101
					Max/Total	**1.177**	**0.177**	**0.068**	**0.0102**
Vertical Construction									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.25	vehicle-miles/day	120	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0175	0.0026
					Max/Total	**0.291**	**0.044**	**0.017**	**0.0026**
Flatwork and Paving									
Site Grading	0.50	acres/day	4	1.1	lbs PM10/day/acre	0.5500	0.0500	0.0011	0.0002
Truck Loading & Dumping (Grading Phase)	2,038	tons/day	4	1.72E-04	lbs/ton	0.3506	0.05309	0.000701	0.000106
Vehicle Miles Off-Road	0.25	vehicle-miles/day	4	1.17	lbs/vehicle-mile	0.2914	0.0441	0.0006	0.0001
					Max/Total	**1.192**	**0.147**	**0.002**	**0.0004**
Interior Finishing									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.000**	**0.0000**
Exterior Improvements									
Site Grading	0.0	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	1.17	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**

Fugitive Dust Emissions: Inputs for the Table

Emission factors based on following inputs		
Mean number of rain days per year	*0*	*worst case*
Silt content of soil, fill storage pile, %	*1.5*	*SCAQMD default value*
Roadway inputs (paved and unpaved, as per URBEMIS)		
Roads mean vehicle weight, tons	*20.61*	*based on project description, HHDT + LDT and vehicles weight (average of full and empty)*
unpaved dirt road silt content, %	*8.4*	*AP-42 construction sites*
Truck Loading inputs		
k, particle size multiplier, default=0.35 fpr pm10	*0.35*	
U, mean wind speed, mph range 1.3-15	*8.15*	
M, moisture content, default=12%	*12*	
PM2.5/PM10	*0.15*	
Site grading emissions from CalEEMod for grading	*0.091*	*ratio of PM2.5/PM10 CalEEMod*
Demolition materials, tons/yds3	*1.000*	*estimated for concrete debris*

Fill materials, tons/yds3	*1.000*	*estimated for soils*
Mitigation: demolition area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: grading/dist area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: dumping soil moisture (fraction reduction)	*0.00*	*0.69 for minimum 12% soil moisture (SCAQMD)*
Mitigation: storage piles (fraction reduction)	*0.00*	*0.90 for watering by hand and covering (SCAQMD)*
Mitigation: roads (fraction reduction)	*0.55*	*0.55 for watering 3X per day (SCAQMD), 0.80 for soil binders applied monthly (AP-42)*

Notes:

PM2.5/PM10 ratio as per AP-42 k factor for PM10 and PM2.5
Demolition dust calculations as per EPA AP-42 11.19 and 13.2.4
Truck loading dumping cut/fill based on CalEEMod
Storage pile emissions based on SCAQMD Handbook (URBEMIS does not address emissions from storage piles)
Paved and unpaved road dust emissions based on AP-42 2006 (unpaved) Chapt 13. EPA AP-42 2006 is the same as URBEMS and CalEEMod
One month assumes 22 days of activity, as per URBEMIS

COPPER RIDGE COMMERCIAL DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 9: Emission Factors and Assumptions

Onsite Construction				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	EF = lb/acre	--	--	--	2.60	--	--	--	--	--	--	--	--	2.6000	--	--	--	--	--	--	--
Architectural Coating	EF = g/L	--	--	--	50	--	--	--	--	--	--	--	--	0.1102	--	--	--	--	--	--	--
Backhoe	4	125	37	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	469	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0349
Crane	4	250	29	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0427
Compressor-1	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Compressor-2	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Dozer	4	200	43	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	474	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0450
Excavator	4	160	38	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	472	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0415
Generator-1	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Generator-2	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Grader	4	150	41	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.155	478	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0549
Lift-1	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Lift-2	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Loader-1	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Loader-2	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Paving Machine	4	100	42	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0367
Paving Equipment	4	100	36	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0432
Paving Roller	4	50	38	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.080	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00018	1.2529
Scraper-1	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Scraper-2	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Water Truck-1	4	400	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.154	475	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0477

Offsite Transportation			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.9793	0.0090	0.0232	0.0222	0.0518	0.0144	0.2399	0.0004	1523	0.0022	0.0000	0.0001	0.0000	0.0001	0.00003	0.00053	0.00000	3.3571

Offsite Dust - Mobile Sources			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	5.1564	1.2895	0.011368	0.002843
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	5.1573	1.2898	0.011370	0.002843
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	5.1971	1.3037	0.011458	0.002874
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	5.2221	1.3125	0.011513	0.002894

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020.*
- Vehicle emissions factors obtained from EMFAC-2021

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CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 1: OPERATIONAL EMISSIONS SUMMARY

Model Run: March 20, 2025

Source	Peak Day Emissions (lbs/day)													Annual Emissions (tons/yr)												
	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	$MTCO_2e$
Operational Phase Without New Vehicle Trip Emissions	2.50	17.01	0.02	0.000	0.025	0.031	0.000	0.031	298	0.012	0.026	8.66	923	0.076	0.201	0.0016	0.000	0.002	0.002	0.000	0.002	7.74	0.0004	0.0005	1.22	73.5	97.8
Operational Phase New Vehicle Trip Emissions*	4.43	0.378	0.111	24.6	24.7	0.104	6.21	6.31	36.3	0.220	1.389	0.091	22,586	0.524	0.065	0.015	4.22	4.24	0.014	1.06	1.08	6.61	0.033	0.128	0.016	3,327	3,050
Total Operational Phase Emissions	**6.9**	**17.39**	**0.136**	**24.6**	**24.8**	**0.135**	**6.21**	**6.3**	**334**	**0.232**	**1.41**	**8.8**	**23,509**	**0.600**	**0.267**	**0.017**	**4.22**	**4.24**	**0.016**	**1.06**	**1.08**	**14.4**	**0.033**	**0.129**	**1.24**	**3,400**	**3,148**
SJVAPCD Operational Significance Thresholds	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	***10***	***10***	**--**	**--**	***15***	**--**	**--**	***15***	***100***	***27***	**--**	**--**	**--**	**--**
Threshold exceeded?	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	***No***	***No***	**--**	**--**	***No***	**--**	**--**	***No***	***No***	***No***	**--**	**--**	**--**	**--**
Total Yearly DPM Emissions From Onsite Diesel Engine Exhaust, tons														***0.0003***	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
GHG - $MTCO_2E$ conversions																								***273***	***28***	***1***	**--**
Total Operational Phase $MTCO_2E$/yr																								***3,148***			
Amortized Construction Phase Emissions																								***14.9***			
Total Operational Phase + Amortized Construction Phase Emissions $MTCO_2E$/yr																								***3,163***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

$MTCO_2E$ - Metric Tons of Carbon Dioxide Equivalent

SJVAPCD - San Joaquin Valley Air Pollution Control District

NO_x - Oxides of Nitrogen

ROG - Reactive Organic Gases

$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

DPM - Diesel Particulate Matter

CO - Carbon Monoxide

SO_2 - Sulfur Dioxide

N_2O - Nitrous Oxide

CH_4 - Methane

CO_2 - Carbon Dioxide

Assumptions:

Operations assumed 7 days per week.

* - Includes vehicle emissions from facilities operation such as deliveries and maintenance. A majority of these emissions occur offsite and away from adjacent sensitive receptors.

** - Onsite DPM emissions were calculated with the assumption that each diesel vehicle would drive at least 0.5 miles onsite. Diesel vehicles were also assumed to idle onsite for at least five minutes.

VOCs emissions from Gasoline and Diesel Underground Storage Tanks included in ROG emissions to be conservative.

COPPER RIDGE COMMERCIAL DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 2: Operations

Landscaping Equipment Sources

Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	25	38	3	8	52	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	623.788	1.138	2.647	0.004	0.005	153.3	0.006	0.003	0.013	313.5	0.030	0.069	0.000	0.000	3.987	0.00014	0.0001	0.0003	8.1522
Trimmer	5	91	2	8	52	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	808.574	0.297	1.067	0.012	0.016	48.9	0.002	0.001	0.005	129.8	0.008	0.028	0.000	0.000	1.270	0.00005	0.0000	0.0001	3.3741
Leaf Blower	5	94	2	8	52	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658.309	0.446	1.017	0.001	0.002	42.7	0.002	0.001	0.005	109.1	0.012	0.026	0.000	0.000	1.111	0.00004	0.0000	0.0001	2.8376
Other Landscape Equipment	5	58	4	8	52	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658.309	0.551	1.253	0.002	0.002	52.7	0.002	0.001	0.006	134.7	0.014	0.033	0.000	0.000	1.371	0.00005	0.0000	0.0001	3.5017
														Total	**2.43**	**5.98**	**0.019**	**0.025**	**298**	**0.011**	**0.006**	**0.029**	**687**	**0.063**	**0.156**	**0.0005**	**0.001**	**7.739**	**0.0003**	**0.0002**	**0.001**	**17.9**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2584	10	365	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	1.844	0.321	0.054	0.050	35.900	0.150	0.226	0.0886	15205.1	0.337	0.059	0.010	0.009	6.552	0.027	0.041	0.016	2775
Light-Duty Truck - LDT2 (offsite)	1	1	136	10	365	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	0.123	0.026	0.014	0.013	0.252	0.007	0.123	0.0012	782.3	0.022	0.005	0.003	0.002	0.046	0.001	0.022	0.000	143
Passenger Vehicle - EV LDA (offsite)	1	1	26	10	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00001	0.1418	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
Light-Duty Truck - EV LDT2 (offsite)	1	1	1	10	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00001	0.1418	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	968.5	0.386	0.006	0.007	0.007	0.038	0.016	0.269	0.0003	1708.2	0.010	0.000	0.000	0.000	0.001	0.000	0.007	0.000	44.41
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.022	0.000	0.000	0.000	0.001	0.000	0.008	0.000	50.86
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.022	0.000	0.000	0.000	0.001	0.000	0.008	0.000	50.86
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.138	0.002	0.002	0.002	0.008	0.003	0.051	0.0001	326.0	0.004	0.000	0.000	0.000	0.000	0.000	0.001	0.000	8.48
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.554	0.006	0.010	0.009	0.033	0.012	0.205	0.0003	1304.1	0.086	0.001	0.002	0.001	0.005	0.002	0.032	0.000	203.45
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.277	0.003	0.005	0.005	0.016	0.006	0.103	0.0001	652.1	0.007	0.000	0.000	0.000	0.000	0.000	0.003	0.000	16.95
														Total	**4.4**	**0.38**	**0.111**	**0.104**	**36**	**0.220**	**1.39**	**0.091**	**22,586**	**0.52**	**0.065**	**0.015**	**0.014**	**6.6**	**0.033**	**0.128**	**0.016**	**3,327**

On-Road Sources - Within Development Only

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2584	10	365	0.3706	0.0930	21.107876	5.297756043	3.852187	0.966840
Light-Duty Truck - LDT2 (offsite)	1	1	136	10	365	0.3715	0.0933	1.113594	0.279757951	0.203231	0.051056
Passenger Vehicle - EV LDA (offsite)	1	1	26	10	365	0.3691	0.0925	0.212355	0.053212993	0.038755	0.009711
Light-Duty Truck - EV LDT2 (offsite)	1	1	1	10	365	0.3691	0.0925	0.011176	0.002800647	0.002040	0.000511
Med-Heavy Duty - T6 Utility (offsite)	1	1	32	25	52	0.4113	0.1073	0.725476	0.189199539	0.018862	0.004919
Heavy Duty Trucks - T7TC (offsite)	1	1	8	25	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.4366	0.1161	0.192501	0.051196199	0.015015	0.003993
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	156	0.4366	0.1161	0.192501	0.051196199	0.015015	0.003993
Heavy Duty Trucks - T7TC (offsite)	1	1	2	50	52	0.4366	0.1161	0.096251	0.025598099	0.002503	0.000666
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
Heavy Duty Trucks - T7TC (offsite)	1	1	8	50	312	0.4366	0.1161	0.385003	0.102392398	0.060060	0.015973
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	52	0.4366	0.1161	0.192501	0.051196199	0.005005	0.001331
							Total	**25**	**6.2**	**4.2**	**1.06**

Land Use Sources

Electricity Use (Land Use)

Source	Units	Electricity Use (kWh/sf/yr)	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
			N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Gasoline Station and Mini Mart	4,899	51,217	0.000004	0.000033	0.3486	0.00056	0.00463	48.92072	0.00010	0.00085	8.93
Food w/drive-thru	2,153	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Food w/drive-thru	2,318	40,154	0.000004	0.000033	0.3486	0.00044	0.00363	38.35357	0.00008	0.00066	7.00
Parking Lot	150,914	876	0.000004	0.000033	0.3486	0.00001	0.00008	0.83673	0.00000	0.00001	0.15
Retail	28,330	10,351	0.000004	0.000033	0.3486	0.00011	0.00094	9.88652	0.00002	0.00017	1.80
Total						**0.002**	**0.013**	**136**	**0.0003**	**0.002**	**24.9**

Land Use Sources

Natural Gas Use (Land Use)

Source	Units	Natural Gas Use (kBTU/sf/yr)	Emission Factors (g/kBTU)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Gasoline Station and Mini Mart	4,899	30,238	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0076	0.0004	0.0006	0.0006	0.0032	0.0000	0.0000	0.0009	9.7	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.77
Food w/drive-thru	2,153	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Food w/drive-thru	2,318	121,851	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0308	0.0018	0.0025	0.0025	0.0131	0.0002	0.0001	0.0035	39.1	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.001	7.13
Parking Lot	150,914	0.000	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Retail	28,330	9,689	0.00009	0.00001	0.00001	0.00001	0.00004	0.00000	0.00000	0.00001	0.11698	0.0024	0.0001	0.0002	0.0002	0.0010	0.0000	0.0000	0.0003	3.11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.567
											Total	**0.072**	**0.004**	**0.006**	**0.006**	**0.030**	**0.000**	**0.0002**	**0.008**	**91**	**0.013**	**0.001**	**0.001**	**0.001**	**0.006**	**0.000**	**0.000**	**0.001**	**16.6**

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Land Use Sources

Electricity Use (Water Use)

Source	Water Use/Year	Emission Factor (lb/kWh) N_2O	Emission Factor (lb/kWh) CH_4	Emission Factor (lb/kWh) CO_2	Emissions (lb/kWh/day) N_2O	Emissions (lb/kWh/day) CH_4	Emissions (lb/kWh/day) CO_2	Emissions (tons/kWh/yr) N_2O	Emissions (tons/kWh/yr) CH_4	Emissions (tons/kWh/yr) CO_2
Gasoline Station and Mini Mart	460,903	0.000004	0.000033	0.3486	0.000000	0.000000	0.00173	0.0000000	0.0000000	0.00032
Food w/drive-thru	653,508	0.000004	0.000033	0.3486	0.000000	0.000000	0.00246	0.0000000	0.0000000	0.00045
Food w/drive-thru	703,591	0.000004	0.000033	0.3486	0.000000	0.000000	0.00265	0.0000000	0.0000000	0.00048
Landscaping	423,646	0.000004	0.000033	0.3486	0.000000	0.000000	0.00159	0.0000000	0.0000000	0.00029
Parking Lot	0	0.000004	0.000033	0.3486	0.000000	0.000000	0.00000	0.0000000	0.0000000	0.00000
Retail	2,098,475	0.000004	0.000033	0.3486	0.000000	0.000001	0.00790	0.0000000	0.0000001	0.00144
Total					**0.000000**	**0.000002**	**0.0163**	**0.0000000**	**0.000000**	**0.003**

Wastewater Treatment

Source	Wastewater Generated (gallons/yr)	Emission Factor (lb/gal) N_2O	Emission Factor (lb/gal) CH_4	Emission Factor (lb/gal) CO_2	Emissions (pound/day) N_2O	Emissions (pound/day) CH_4	Emissions (pound/day) CO_2	Emissions (tons/year) N_2O	Emissions (tons/year) CH_4	Emissions (tons/year) CO_2
Gasoline Station and Mini Mart	460,903	0.0000017	0.0008020	0.0007800	0.0022	1.0127	0.9849	0.00000	0.00051	0.00049
Food w/drive-thru	653,508	0.0000017	0.0008020	0.0007800	0.0031	1.4359	1.3965	0.00000	0.00072	0.00070
Food w/drive-thru	703,591	0.0000017	0.0008020	0.0007800	0.0033	1.5460	1.5036	0.00000	0.00077	0.00075
Landscaping	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Parking Lot	0	0.0000017	0.0008020	0.0007800	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000
Retail	2,098,475	0.0000017	0.0008020	0.0007800	0.0098	4.6109	4.4844	0.00000	0.00231	0.00224
Total					**0.0183**	**8.6**	**8.4**	**0.0000**	**0.004**	**0.004**

Solid Waste

Source	Solid Waste Generated (tons/yr)	Emission Factor (tons/ton) CH_4	Emission Factor (tons/ton) CO_2	Emissions (pound/day) CH_4	Emissions (pound/day) CO_2	Emissions (tons/year) CH_4	Emissions (tons/year) CO_2
Gasoline Station and Mini Mart	14.0	0.00844	0.09846	0.0004	0.0042	0.1184	1.38
Food w/drive-thru	18.6	0.00844	0.09846	0.0005	0.0055	0.1569	1.83
Food w/drive-thru	20.0	0.00844	0.09846	0.0005	0.0060	0.1690	1.97
Parking Lot	0.000	0.00844	0.09846	0.0000	0.0000	0.0000	0.000
Retail	91.4	0.00844	0.09846	0.0023	0.0272	0.7711	9.00
			Total	**0.00**	**0.043**	**1.22**	**14.2**

Gasoline Underground Storage Tank VOCs - Yearly

VOC Subatances	Phase I Loading (vapor) (lb/yr)	Phase II Breathing (vapor) (lb/yr)	Phase II Fueling (vapor) (lb/yr)	Phase II Spillage (liquid) (lb/yr)	Phase II Hose Permeation (vapor) (lb/yr)	Phase I Loading (vapor) (tons/yr)	Phase II Breathing (vapor) (tons/yr)	Phase II Fueling (vapor) (tons/yr)	Phase II Spillage (liquid) (tons/yr)	Phase II Hose Permeation (vapor) (tons/yr)
Benzene	0.686	0.110	0.407	1.70	0.041	0.00034	0.00005	0.00020	0.00085	0.00002
Ethyl Benzene	0.161	0.026	0.095	3.10	0.010	0.00008	0.00001	0.00005	0.00155	0.00000
Hexane	2.73	0.437	1.62	4.54	0.164	0.00137	0.00022	0.00081	0.00227	0.00008
Naphthalene	0.0007	0.0001	0.0004	0.418	0.00004	0.00000	0.00000	0.00000	0.00021	0.00000
Propylene (propene)	0.005	0.001	0.003	0.0003	0.0003	0.00000	0.00000	0.00000	0.00000	0.00000
Toluene	1.67	0.266	0.99	13.5	0.100	0.00083	0.00013	0.00049	0.00676	0.00005
Xylenes	0.614	0.098	0.364	15.8	0.037	0.00031	0.00005	0.00018	0.00791	0.00002
Total VOCs*			**49.7**					**0.025**		

Gasoline Underground Storage Tank VOCs - Hourly

VOC Subatances	Phase I Loading (vapor) (lb/hr)	Phase II Breathing (vapor) (lb/hr)	Phase II Fueling (vapor) (lb/hr)	Phase II Spillage (liquid) (lb/hr)	Phase II Hose Permeation (vapor) (lb/hr)
Benzene	0.0072	0.0001	0.0005	0.0017	0.00005
Ethyl Benzene	0.0014	0.00003	0.0011	0.0031	0.00001
Hexane	0.0240	0.00044	0.0017	0.0045	0.00016
Naphthalene	0.00001	0.0000001	0.0002	0.0004	0.00000004
Propylene (propene)	0.00005	0.0000009	0.0000001	0.0000003	0.000000
Toluene	0.018	0.0003	0.001	0.014	0.0001
Xylenes	0.007	0.0001	0.000	0.017	0.00005
Total VOCs*			**0.104**		

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Diesel Underground Storage Tank VOCs - Yearly

VOC Subatances	Phase I Loading (vapor) (lb/yr)	Phase II Breathing (vapor) (lb/yr)	Phase II Fueling (vapor) (lb/yr)	Phase II Spillage (liquid) (lb/yr)	Phase II Hose Permeation (vapor) (lb/yr)	Phase I Loading (vapor) (Tons/yr)	Phase II Breathing (vapor) (Tons/yr)	Phase II Fueling (vapor) (Tons/yr)	Phase II Spillage (liquid) (Tons/yr)	Phase II Hose Permeation (vapor) (Tons/yr)
2,2,4-Trimethyl Pentane	0.0266	0.0064	0.168	0.029	0.001	0.00001	0.00000	0.00008	0.00001	0.00000
1,2,4-Trimethyl Benzene	1.3262	0.3211	8.376	1.466	0.031	0.00066	0.00016	0.00419	0.00073	0.00002
Benzene	0.0152	0.0037	0.096	0.017	0.000	0.00001	0.00000	0.00005	0.00001	0.00000
Biphenyl	0.4446	0.1076	2.808	0.491	0.011	0.00022	0.00005	0.00140	0.00025	0.00001
Cumene	0.2128	0.0515	1.344	0.235	0.005	0.00011	0.00003	0.00067	0.00012	0.00000
Ethyl Benzene	0.2014	0.0488	1.272	0.223	0.005	0.00010	0.00002	0.00064	0.00011	0.00000
Hexane	0.1140	0.0276	0.720	0.126	0.003	0.00006	0.00001	0.00036	0.00006	0.00000
Naphthalene	1.0830	0.2622	6.840	1.197	0.026	0.00054	0.00013	0.00342	0.00060	0.00001
Toluene	0.3078	0.0745	1.944	0.340	0.007	0.00015	0.00004	0.00097	0.00017	0.00000
Xylenes	0.9158	0.2217	5.784	1.012	0.022	0.00046	0.00011	0.00289	0.00051	0.00001
Total VOCs*			**40.4**					**0.020**		

Diesel Underground Storage Tank VOCs - Hourly

VOC Subatances	Phase I Loading (vapor) (lb/hr)	Phase II Breathing (vapor) (lb/hr)	Phase II Fueling (vapor) (lb/hr)	Phase II Spillage (liquid) (lb/hr)	Phase II Hose Permeation (vapor) (lb/hr)
2,2,4-Trimethyl Pentane	0.0002	0.0001	0.001	0.0003	0.00001
1,2,4-Trimethyl Benzene	0.0117	0.0028	0.074	0.0129	0.00028
Benzene	0.0001	0.0000	0.001	0.0001	0.00000
Biphenyl	0.0039	0.0009	0.025	0.0043	0.00009
Cumene	0.0019	0.0005	0.012	0.0021	0.00004
Ethyl Benzene	0.0018	0.0004	0.011	0.0020	0.00004
Hexane	0.0010	0.0002	0.006	0.0011	0.00002
Naphthalene	0.0095	0.0023	0.060	0.0105	0.00023
Toluene	0.0027	0.0007	0.017	0.0030	0.00006
Xylenes	0.0081	0.0020	0.051	0.0089	0.00019
Total VOCs*			**0.36**		

Notes:

VOCs - Volitile Orgnaic Compounds
BHP - Break Horse Power
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less.
PM_{10} - Particulate Matter 10 Microns or Less.
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide
* - May not include other potential VOCs.
- Square footage and number of units provided by client
- Daily trips for LDA and LDT2 were estimated from peak AM and PM traffic data obtained from the Draft Traffic Evaluation and Vehicle Miles Traveled Assessment for the Hub Project (C2 Consult Corp, 2024).
- Round trips for medium and heavy duty trucks were estimated.
- Assumes 1% of LDA and LDT2 will be electric vehicles.
- Assumes 15 mile round trips for LDA and LDT2.
- Assumes 25 to 50 mile round trips for medium and heavy duty trucks.

COPPER RIDGE COMMERCIAL DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

TABLE 3: Operational Emission Factors and Assumptions

Onsite Maintenance

Source	Tier	Operational Horsepower	Load Factor	Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)							
				NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	--	25	38	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	624	0.0050	0.0116	0.0000	0.0000	0.6725	0.00002	0.00001	0.00006	1.3752
Trimmer	--	5	91	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	809	0.0041	0.0147	0.0002	0.0002	0.6712	0.00003	0.00002	0.00007	1.7826
Leaf Blower	--	5	94	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513
Other Landscape Equipment	--	5	58	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513

Offsite Emissions - Mobile Sources

Source	Tier	Region	Emission Factors (g/mile)									Emission Factors (lb/mile)								
			NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000002	0.000013	0.142	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0003
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	261	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000002	0.000013	0.142	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0003
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1479	0.0014	0.0000	0.0000	0.0000	0.0001	0.00003	0.00051	0.00000	3.2604

Offsite Dust - Mobile Sources

Source	Tier	Region	Emission Factors (g/mile)		Emission Factors (lb/mile)	
			PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.3706	0.0930	0.000817	0.000205
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.3715	0.0933	0.000819	0.000206
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.3691	0.0925	0.000814	0.000204
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.4113	0.1073	0.000907	0.000237
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.4366	0.1161	0.000963	0.000256

Offsite Energy Consumption

Source	Energy Consumption (kWh/mile)
Passenger Vehicle - EV LDA (offsite)	0.40674
Light-Duty Truck - EV LDT2 (offsite)	0.40674

Recycling and Composting

Recycling and Composting Program	Percentage of Waste Recycled or Composted
	25

Electricity and Natural Gas Use by Land Use

Source	kWhr/Unit/Year	kBtu/Unit/Year
	Electricity	Natural Gas
Gasoline Station and Mini Mart	51,217	30,238
Food w/drive-thru	40,154	121,851
Food w/drive-thru	40,154	121,851
Parking Lot	876	0.000
Retail	10,351	9,689

Electricity Emission Factors

Source	Electricity Source	Emission Factors (lb/kWhr)		
		N_2O	CH_4	CO_2
Electricity Usage	Southern California Edison	0.000004	0.00003	0.3486

Natural Gas Emissions Factors

Source	Electricity Source	Emission Factors, g/kBTU									Emission Factors (lb/kBTU)								
		NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Natural Gas Residential	California Gas Company	0.041802	0.002446	0.003380	0.003380	0.017788	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977
Natural Gas Commercial	California Gas Company	0.044470	0.002446	0.003380	0.003380	0.037355	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977

Water Energy-Intensity Factor

Source	kWh/Gal
Project Site	0.00394

Solid Waste Disposal Rate

Source	Region	Rate (Tons/Year)
Gasoline Station and Mini Mart	Statewide	19
Food w/drive-thru	Statewide	25
Food w/drive-thru	Statewide	27
Parking Lot	Statewide	0
Retail	Statewide	122

Solid Waste Emissions Factors

Landfill Type	CH_4 (tons/ton)	CO_2 (tons/ton)
No Landfill Gas Collection	0.0084	0.0985

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Water Use Rates

Source	Units or Square Feet	Indoor Water Use (gal/unit or Square Feet per yr)	Outdoor Water Use (gal/unit or gal/Square Feet per yr)	Water Use		
				Total Indoor Water Use (gal)	Total Outdoor Water Use (gal)	Total Water Use (gal)
Gasoline Station and Mini Mart	4,899	94	0.000	460,903	0.000	460,903
Food w/drive-thru	2,153	304	0.000	653,508	0.000	653,508
Food w/drive-thru	2,318	304	0.000	703,591	0.000	703,591
Landscaping	35,000	0.000	12.1	0.00	423,646	423,646
Parking Lot	150,914	0.000	0.000	0.000	0.000	0.000
Retail	28,330	74	0.000	2,098,475	0.000	2,098,475
			Total	**3,916,477**	**423,646**	**4,340,123**

Wastewater Treatment

Source	Emission Factor (lb/gal)		
	N_2O	CH_4	CO_2
Wastewater Treatment	0.0000017	0.000802	0.00078

Climate Zone

	Zone
Climate Zone	4

Gasoline Underground Storage Tank VOCs Factors with EVR

Source	EVR Emission Factor (lbs/kgal)	VOC Rate (lbs/hr)	VOC Rate (lbs/yr)
Loading	0.150	0.0171	150
Breathing	0.024	0.0027	24.0
Fueling ORVR	0.089	0.0102	89.0
Spillage	0.240	0.0274	240
Hose Permeation	0.009	0.0010	9

Gasoline VOCs

Subatance	Summer and Winter		Summer	
	By Weight % Vapor	By Weight % Liquid	By Weight % Vapor	By Weight % Liquid
	Emission Factor (lbs/lb)	Emission Factor (lbs/lb)	Emission Factor (lbs/lb)	Emission Factor (lbs/lb)
Benzene	0.00457	0.00707	0.00549	0.00702
Ethyl Benzene	0.00107	0.0129	NA	NA
Hexane	0.0182	0.0189	NA	NA
Naphthalene	0.000004	0.00174	NA	NA
Propylene (propene)	0.000036	0.000001	NA	NA
Toluene	0.0111	0.0563	0.0135	0.058
Xylenes	0.00409	0.0659	0.00509	0.0691

Diesel Underground Storage Tank VOCs Factors Pre-EVR

Source	EVR Emission Factor (lbs/kgal)	VOC Rate (lbs/hr)	VOC Rate (lbs/yr)
Loading	0.380	0.0434	380
Breathing	0.092	0.0105	92
Fueling Non-ORVR	2.400	0.2740	2400
Spillage	0.420	0.0479	420
Hose Permeation	0.009	0.0010	9

Diesel VOCs

Subatance	Annual	
	By Weight % Vapor	
	Emission Factor (lbs/lb)	
2,2,4-Trimethyl Pentane	0.00007	
1,2,4-Trimethyl Benzene	0.00349	
Benzene	0.00004	
Biphenyl	0.00117	
Cumene	0.00056	
Ethyl Benzene	0.00053	
Hexane	0.0003	
Naphthalene	0.002850	
Toluene	0.00081	
Xylenes	0.00241	

Station Throughput

Subatance	kgal/yr
Gasoline	1,000
Diesel	1,000

Notes:

EVR - Enhanced Vapor Recovery

ORVR - Onboard Refueling Vapor Recovery

VOCs - Volitile Orgnaic Compounds

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020 and CalEEMod, Appendix G, 2022.
- Electricity and Natural Gas Emission Factors were obtained from CalEEMod, Appendix G 2022.
- Electricity Use by Land Use obtained from CalEEMod, Appendix G 2022.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D- 20164.*
- CO_2 and CH_4 emission factors for equipment were obtained from *CalEEMod Appendix G 2022.*
- CO_2 and CH_4 emission were obtained from *CalEEMod Appendix G 2022.*
- Vehicle emissions factors obtained from EMFAC-2021
- Solid waste and waste water emission factors and waste disposal rates obtained from CalEEMod Appendix G 2022
- Water use rates and wastewater treatment rates obtained from CalEEMod Appendix G 2022
- Waste disposal rates obtained from CalEEMod Appendix G 2022
- Diesel underground storage tank emissions factors obtained from Emissions Estimation Protocol for Petroleum Refineries, Appendix A, Table A-1 , U.S. Environmental Protection Agency, 2015.
- Gasoline underground storage tank emissions factors obtained from Gasoline Service Station Industrywide Risk Assessment Technical Guidance, Tables 9, 11 and 12 , California Air Resources Board and California Air Pollution Control Officers Association, 2022.
- Annual throughput provided by the client at approximatley 1,040,000 gallon per year.
- Hourly throughput esitmate obtained from Gasoline Service Station Industrywide Risk Assessment Technical Guidance, Table 10 , California Air Resources Board and California Air Pollution Control Officers Association, 2022..

* - Includes landscaping associated within the proposed mixed-use areas.

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 1: CONSTRUCTION EMISSIONS SUMMARY

Model Run: January 24, 2025

Source	Days*	Peak Day Emissions, lbs/day													Project Emissions, tons												$MTCO_2e$
		NO_x	ROG	$PM_{10}E$**	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$**	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$**	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$**	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	
Grading	22.5	3.85	0.738	0.113	31.6	31.7	0.112	3.22	3.33	29.0	0.071	0.228	1.841	6,872	0.036	0.008	0.001	0.515	0.516	0.001	0.078	0.080	0.320	0.001	0.001	0.020	66.8	61.3
Utilities	33	4.98	0.423	0.091	17.0	17.1	0.089	1.94	2.03	17.4	0.060	0.495	0.777	5,979	0.052	0.006	0.001	0.269	0.270	0.001	0.042	0.043	0.253	0.001	0.003	0.011	57.8	53.4
Vertical Construction	150	5.64	0.148	0.079	15.7	15.7	0.076	2.00	2.08	3.81	0.061	0.909	0.066	6,320	0.235	0.009	0.002	1.821	1.824	0.002	0.288	0.290	0.276	0.002	0.026	0.005	208	195
Flatwork and Paving	33	12.01	2.08	0.214	9.56	9.77	0.208	1.57	1.78	26.9	0.140	1.578	1.344	14,330	0.141	0.016	0.003	0.141	0.144	0.003	0.026	0.029	0.300	0.002	0.020	0.016	175	164
Interior Finishing	44	3.23	0.448	0.050	1.95	2.00	0.049	0.494	0.543	9.76	0.036	0.324	0.111	3,567	0.046	0.009	0.0007	0.034	0.035	0.001	0.009	0.009	0.172	0.0005	0.003	0.002	47.8	44.2
Exterior Finishing	22	2.74	0.652	0.046	1.62	1.66	0.044	0.411	0.456	8.89	0.033	0.297	0.100	3,259	0.022	0.007	0.0003	0.014	0.014	0.0003	0.003	0.004	0.097	0.0002	0.001	0.001	24.0	22.1
Peak Day Emissions, lb/day		***12.0***	***2.08***	***0.214***	***31.6***	***31.7***	***0.21***	***3.22***	***3.33***	***29.0***	***0.140***	***1.58***	***1.84***	***14,330***	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Year -1 Emissions, tons															***0.533***	***0.055***	***0.008***	***2.795***	***2.803***	***0.008***	***0.447***	***0.454***	***1.419***	***0.006***	***0.054***	***0.056***	***579***	***541***
Project Year -2 Emissions, tons															***0.533***	***0.055***	***0.008***	***2.795***	***2.803***	***0.008***	***0.447***	***0.454***	***1.419***	***0.006***	***0.054***	***0.056***	***579***	***541***
Project Year -3 Emissions, tons															***0.533***	***0.055***	***0.008***	***2.795***	***2.803***	***0.008***	***0.447***	***0.454***	***1.419***	***0.006***	***0.054***	***0.056***	***579***	***541***
Project Year -4 Emissions, tons															***0.533***	***0.055***	***0.008***	***2.795***	***2.803***	***0.008***	***0.447***	***0.454***	***1.419***	***0.006***	***0.054***	***0.056***	***579***	***541***
SJVAPCD Significance Thresholds															***10***	***10***	--	--	***15***	--	--	***15***	***100***	***27***	--	--	--	--
Threshold exceeded?															***No***	***No***	--	--	***No***	--	--	***No***	***No***	***No***	--	--	--	--
Total Project Emissions, tons															***2.13***	***0.220***	***0.031***	***11.2***	***11.2***	***0.030***	***1.79***	***1.82***	***5.67***	***0.023***	***0.216***	***0.224***	***2,318***	***2,162***
Project Year -1 DPM Emissions From Onsite Equipment, tons																	***0.0018***	--	--	--	--	--	--	--	--	--	--	--
Project Year -2 DPM Emissions From Onsite Equipment, tons																	***0.0018***	--	--	--	--	--	--	--	--	--	--	--
Project Year -3 DPM Emissions From Onsite Equipment, tons																	***0.0018***	--	--	--	--	--	--	--	--	--	--	--
Project Year -4 DPM Emissions From Onsite Equipment, tons																	***0.0018***	--	--	--	--	--	--	--	--	--	--	--
Total DPM Emissions From Onsite Equipment, tons																	***0.00725***	--	--	--	--	--	--	--	--	--	--	--
																									273	***27.9***	***1***	--
																										2,162		

Notes:
- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

SJVAPCD - San Joaquin Valley Air Pollution Control District
$MTCO_2e$ - Metric Tons of Carbon Dioxide Equivalent
NO_x - Oxides of Nitrogen
ROG - Reactive Organic Gases
$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.
DPM - Diesel Particulate Matter
CO - Carbon Monoxide
SO_2 - Sulfur Dioxide
N_2O - Nitrous Oxide
CH_4 - Methane
CO_2 - Carbon Dioxide
* - Four years of construction.
** - Includes emissions from onroad vehicles operating offsite and away from adjacent sensitive receptors.

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 2: Grading

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	4	15	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.106	0.024	0.003	0.003	1.509	0.002	0.002	0.0620	191	0.001	0.000	0.000	0.000	0.011	0.000	0.000	0.000	1.44
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	8	22.5	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.282	0.065	0.009	0.009	4.013	0.005	0.005	0.1681	519	0.003	0.001	0.000	0.000	0.045	0.000	0.000	0.002	5.84
Lift-1	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	6	22.5	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.003	0.001	0.000	0.000	0.029	0.000	0.000	0.002	6.29
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	8	22.5	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.012	0.003	0.000	0.000	0.100	0.000	0.000	0.007	21.33
Scraper-2	475	48	1	8	22.5	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	1.046	0.241	0.032	0.032	8.847	0.020	0.017	0.6112	1896	0.012	0.003	0.000	0.000	0.100	0.000	0.000	0.007	21.33
Water Truck-1	400	38	1	4	22.5	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.004	0.001	0.000	0.000	0.033	0.000	0.000	0.002	7.17
														Total	**3.137**	**0.72**	**0.10**	**0.097**	**28.783**	**0.060**	**0.051**	**1.840**	**5698**	**0.035**	**0.008**	**0.001**	**0.001**	**0.318**	**0.001**	**0.001**	**0.020**	**63.39**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	2	50	23	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.009	0.002	0.000	0.000	0.127	0.001	0.001	0.000	52.1	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.599
Light-Duty Truck - LDT2 (offsite)	1	1	5	50	23	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.031	0.005	0.003	0.003	0.055	0.002	0.026	0.000	164	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.882
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	7	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
Heavy Duty Trucks - T7TC (offsite)	1	1	5	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.559	0.006	0.011	0.011	0.028	0.007	0.124	0.000	789	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.789
														Total	**0.71**	**0.01**	**0.02**	**0.02**	**0.21**	**0.011**	**0.178**	**0.001**	**1173**	**0.001**	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	**3.39**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	2	50	23	0.4263	0.1069	0.082237	0.020629766	0.000946	0.000237
Light-Duty Truck - LDT2 (offsite)	1	1	5	50	23	0.4273	0.1073	0.247292	0.062092478	0.002844	0.000714
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	7	0.4642	0.1202	0.005117	0.001325191	0.000018	0.000005
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.4920	0.1299	0.054237	0.014323829	0.000027	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	5	50	2	0.4920	0.1299	0.271183	0.071619143	0.000271	0.000072
							Total	**0.660067**	**0.169990**	**0.004106**	**0.001035**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 3: Phase

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	22	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.002	0.000	0.000	0.000	0.025	0.000	0.000	0.001	3.16
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	4	33	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.002	0.000	0.000	0.000	0.026	0.000	0.000	0.000	3.97
Compressor-2	100	48	1	4	22	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.110	0.025	0.003	0.003	1.566	0.003	0.002	0.0135	241	0.001	0.000	0.000	0.000	0.017	0.000	0.000	0.000	2.65
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	4	33	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.139	0.032	0.004	0.004	1.984	0.003	0.002	0.0820	253	0.002	0.001	0.000	0.000	0.033	0.000	0.000	0.001	4.18
Generator-1	25	74	1	8	33	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.015	0.001	0.000	0.000	0.022	0.000	0.000	0.000	3.06
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	33	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.006	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.15
Lift-2	50	20	1	6	22	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Loader-1	250	36	1	6	33	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.310	0.071	0.010	0.010	2.619	0.006	0.005	0.1810	559	0.005	0.001	0.000	0.000	0.043	0.000	0.000	0.003	9.23
Loader-2	250	36	1	4	22	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.206	0.048	0.006	0.006	1.746	0.004	0.003	0.1206	373	0.002	0.001	0.000	0.000	0.019	0.000	0.000	0.001	4.10
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	4	33	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.349	0.080	0.011	0.011	2.949	0.007	0.006	0.2064	637	0.006	0.001	0.000	0.000	0.049	0.000	0.000	0.003	10.51
														Total	**3.005**	**0.39**	**0.05**	**0.047**	**17.010**	**0.031**	**0.025**	**0.775**	**2915**	**0.045**	**0.006**	**0.001**	**0.001**	**0.247**	**0.000**	**0.000**	**0.011**	**42.76**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	3	50	33	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.015	0.003	0.000	0.000	0.217	0.001	0.002	0.001	89.3	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	1.473
Light-Duty Truck - LDT2 (offsite)	1	1	9	50	33	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.053	0.009	0.005	0.005	0.094	0.003	0.044	0.000	281	0.001	0.000	0.000	0.000	0.002	0.000	0.001	0.000	4.630
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	12	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	15	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.671	0.008	0.013	0.013	0.033	0.009	0.149	0.000	947	0.005	0.000	0.000	0.000	0.000	0.000	0.001	0.000	7.102
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	3	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	1.118	0.013	0.022	0.021	0.055	0.015	0.249	0.001	1578	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.578
														Total	**1.97**	**0.03**	**0.04**	**0.04**	**0.40**	**0.029**	**0.470**	**0.002**	**3064**	**0.007**	**0.000**	**0.000**	**0.000**	**0.005**	**0.000**	**0.002**	**0.000**	**15.08**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	3	50	33	0.4263	0.1069	0.140978	0.035365313	0.002326	0.000584
Light-Duty Truck - LDT2 (offsite)	1	1	9	50	33	0.4273	0.1073	0.423930	0.106444249	0.006995	0.001756
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	12	0.4642	0.1202	0.005117	0.001325191	0.000031	0.000008
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	15	0.4920	0.1299	0.325420	0.085942971	0.002441	0.000645
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	3	0.4920	0.1299	0.054237	0.014323829	0.000081	0.000021
Heavy Duty Trucks - T7TC (offsite)	1	1	10	50	2	0.4920	0.1299	0.542367	0.143238285	0.000542	0.000143
							Total	**1.492049**	**0.386640**	**0.012416**	**0.003157**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 4: Vertical Construction

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	0.000	0	--	50.0	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Generator-1	25	74	1	8	150	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.067	0.003	0.000	0.000	0.100	0.000	0.000	0.002	13.907
Generator-2	25	74	1	8	150	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.067	0.003	0.000	0.000	0.100	0.000	0.000	0.002	13.907
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lift-1	50	20	1	6	150	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.027	0.001	0.000	0.000	0.037	0.000	0.000	0.002	5.213
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
														Total	**2.157**	**0.09**	**0.01**	**0.006**	**3.165**	**0.005**	**0.003**	**0.063**	**440**	**0.162**	**0.007**	**0.000**	**0.000**	**0.237**	**0.000**	**0.000**	**0.005**	**33.03**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	5	50	150	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.025	0.004	0.001	0.001	0.362	0.001	0.003	0.001	149	0.002	0.000	0.000	0.000	0.027	0.000	0.000	0.000	11.161
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	150	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.059	0.010	0.006	0.005	0.104	0.003	0.049	0.000	312	0.004	0.001	0.000	0.000	0.008	0.000	0.004	0.000	23.382
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	150	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.326	0.005	0.005	0.005	0.025	0.010	0.168	0.000	1068	0.024	0.000	0.000	0.000	0.002	0.001	0.013	0.000	80.091
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	30	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160
Heavy Duty Trucks - T7TC (offsite)	1	1	20	50	10	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	2.236	0.025	0.045	0.043	0.110	0.030	0.497	0.001	3157	0.011	0.000	0.000	0.000	0.001	0.000	0.002	0.000	15.8
Heavy Duty Trucks - T7TC (offsite)	1	1	5	35	150	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.391	0.004	0.008	0.008	0.02	0.005	0.087	0.000	552	0.029	0.000	0.001	0.001	0.001	0.000	0.007	0.000	41.430
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	30	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.367
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.335	0.004	0.007	0.006	0.017	0.004	0.075	0.000	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.473
														Total	**3.49**	**0.05**	**0.07**	**0.07**	**0.64**	**0.056**	**0.905**	**0.003**	**5879**	**0.073**	**0.002**	**0.002**	**0.002**	**0.039**	**0.002**	**0.026**	**0.000**	**174.85**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	5	50	150	0.4263	0.1069	0.234964	0.058942188	0.017622	0.004421
Light-Duty Truck - LDT2 (offsite)	1	1	10	50	150	0.4273	0.1073	0.471033	0.118271388	0.035327	0.008870
Med-Heavy Duty - T6 Utility (offsite)	1	1	10	50	150	0.4642	0.1202	0.511741	0.132519115	0.038381	0.009939
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	30	0.4642	0.1202	0.005117	0.001325191	0.000077	0.000020
Heavy Duty Trucks - T7TC (offsite)	1	1	20	50	10	0.4920	0.1299	1.084734	0.286476571	0.005424	0.001432
Heavy Duty Trucks - T7TC (offsite)	1	1	5	35	150	0.4920	0.1299	0.189828	0.0501334	0.014237	0.003760
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	30	0.4920	0.1299	0.054237	0.014323829	0.000814	0.000215
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	2	0.4920	0.1299	0.162710	0.042971486	0.000163	0.000043
							Total	**2.714363**	**0.704963**	**0.112044**	**0.028700**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for concrete delevery estimated from Visalia California (approximatley 35-miles).

Round trips for fuel deliveries from Hanford area (approximatley 5-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 5: Flatwork and Paving

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.526	11	--	2.600	--	--	--	--	--	--	--	--	1.3684	--	--	--	--	--	--	--	--	0.008	--	--	--	--	--	--	--
Architectural Coating	--	--	0	0.000	0	--	50.000	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Backhoe	125	37	1	6	33	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.159	0.037	0.005	0.005	2.264	0.003	0.003	0.0930	287	0.003	0.001	0.000	0.000	0.037	0.000	0.000	0.002	4.74
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-2	100	48	1	0	0	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Dozer	200	43	1	6	11	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.296	0.068	0.009	0.009	2.503	0.006	0.005	0.1740	539	0.002	0.000	0.000	0.000	0.014	0.000	0.000	0.001	2.97
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	33	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.015	0.001	0.000	0.000	0.022	0.000	0.000	0.000	3.06
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	33	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.006	0.000	0.000	0.000	0.008	0.000	0.000	0.000	1.15
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	8	33	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.413	0.095	0.013	0.013	3.492	0.008	0.007	0.2413	746	0.007	0.002	0.000	0.000	0.058	0.000	0.000	0.004	12.30
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	2	8	11	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.385	0.089	0.012	0.012	5.482	0.007	0.006	0.2252	697	0.002	0.000	0.000	0.000	0.030	0.000	0.000	0.001	3.83
Paving Equipment	100	36	1	8	11	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.165	0.038	0.005	0.005	2.349	0.003	0.003	0.0971	300	0.001	0.000	0.000	0.000	0.013	0.000	0.000	0.001	1.65
Paving Roller	50	38	2	8	11	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	1.836	0.080	0.005	0.005	2.480	0.003	0.003	0.0536	381	0.010	0.000	0.000	0.000	0.014	0.000	0.000	0.000	2.09
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	8	33	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.697	0.161	0.021	0.021	5.898	0.013	0.011	0.4128	1274	0.012	0.003	0.000	0.000	0.097	0.000	0.000	0.007	21.02
														Total	**5.211**	**1.99**	**0.07**	**0.074**	**26.294**	**0.047**	**0.039**	**1.340**	**4479**	**0.056**	**0.015**	**0.001**	**0.001**	**0.293**	**0.001**	**0.000**	**0.016**	**52.81**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	1	50	33	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.005	0.001	0.000	0.000	0.072	0.000	0.001	0.000	29.8	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.491
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	33	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.018	0.003	0.002	0.002	0.031	0.001	0.015	0.000	93.5	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	1.543
Passenger Vehicle - LDA (offsite)	1	1	2	50	11	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.010	0.002	0.000	0.000	0.145	0.001	0.001	0.000	59.5	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.327
Light-Duty Truck - LDT2 (offsite)	1	1	5	50	11	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.029	0.005	0.003	0.003	0.052	0.001	0.025	0.000	156	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.857
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	7	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	5	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.671	0.008	0.013	0.013	0.033	0.009	0.149	0.000	947	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.367
Heavy Duty Trucks - T7TC (offsite)	1	1	19	80	33	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	3.398	0.038	0.068	0.065	0.17	0.045	0.756	0.002	4798	0.056	0.001	0.001	0.001	0.003	0.001	0.012	0.000	79.166
Heavy Duty Trucks - T7TC (offsite)	1	1	6	35	33	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.469	0.005	0.009	0.009	0.02	0.006	0.104	0.000	663	0.008	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.937
Heavy Duty Trucks - T7TC (offsite)	1	1	6	80	33	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	1.073	0.012	0.022	0.021	0.05	0.014	0.239	0.001	1515	0.018	0.000	0.000	0.000	0.001	0.000	0.004	0.000	25.000
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	3	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	1.006	0.011	0.020	0.019	0.050	0.013	0.224	0.001	1420	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.420
														Total	**6.79**	**0.09**	**0.14**	**0.13**	**0.63**	**0.093**	**1.539**	**0.005**	**9851**	**0.085**	**0.001**	**0.002**	**0.002**	**0.007**	**0.001**	**0.019**	**0.000**	**122.38**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	1	50	33	0.4263	0.1069	0.046993	0.011788438	0.000775	0.000195
Light-Duty Truck - LDT2 (offsite)	1	1	3	50	33	0.4273	0.1073	0.141310	0.035481416	0.002332	0.000585
Passenger Vehicle - LDA (offsite)	1	1	2	50	11	0.4263	0.1069	0.093985	0.023576875	0.000517	0.000130
Light-Duty Truck - LDT2 (offsite)	1	1	5	50	11	0.4273	0.1073	0.235516	0.059135694	0.001295	0.000325
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	7	0.4642	0.1202	0.005117	0.001325191	0.000018	0.000005
Heavy Duty Trucks - T7TC (offsite)	1	1	6	50	5	0.4920	0.1299	0.325420	0.085942971	0.000814	0.000215
Heavy Duty Trucks - T7TC (offsite)	1	1	19	80	33	0.4920	0.1299	1.648795	0.435444388	0.027205	0.007185
Heavy Duty Trucks - T7TC (offsite)	1	1	6	35	33	0.4920	0.1299	0.227794	0.06016008	0.003759	0.000993
Heavy Duty Trucks - T7TC (offsite)	1	1	6	80	33	0.4920	0.1299	0.520672	0.137508754	0.008591	0.002269
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	3	0.4920	0.1299	0.054237	0.014323829	0.000081	0.000021
Heavy Duty Trucks - T7TC (offsite)	1	1	9	50	2	0.4920	0.1299	0.488130	0.128914457	0.000488	0.000129
							Total	**3.787970**	**0.993602**	**0.045875**	**0.012051**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for baserock and asphalt delevery estimated from Sanger California (approximatley 80-miles).

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for concrete delevery estimated from Visalia California (approximatley 35-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 6: Interior Finishing

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	208.9	44	--	50.0	--	--	--	--	--	--	--	--	0.2303	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	44	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.005	0.001	0.000	0.000	0.069	0.000	0.000	0.001	10.58
Compressor-2	100	48	1	8	22	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.001	0.000	0.000	0.034	0.000	0.000	0.000	5.29
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	44	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.020	0.001	0.000	0.000	0.029	0.000	0.000	0.000	4.08
Generator-2	25	74	1	4	22	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.449	0.020	0.001	0.001	0.669	0.001	0.001	0.0101	92.7	0.005	0.000	0.000	0.000	0.007	0.000	0.000	0.000	1.02
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	44	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.008	0.000	0.000	0.000	0.011	0.000	0.000	0.000	1.53
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**2.149**	**0.41**	**0.02**	**0.019**	**8.761**	**0.014**	**0.010**	**0.107**	**1310**	**0.040**	**0.008**	**0.000**	**0.000**	**0.151**	**0.000**	**0.000**	**0.002**	**22.50**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	10	50	44	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.050	0.009	0.001	0.001	0.724	0.003	0.005	0.002	297.6	0.001	0.000	0.000	0.000	0.016	0.000	0.000	0.000	6.548
Light-Duty Truck - LDT2 (offsite)	1	1	22	50	44	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.129	0.023	0.012	0.012	0.229	0.006	0.108	0.001	686	0.003	0.000	0.000	0.000	0.005	0.000	0.002	0.000	15.089
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	8	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	12	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.335	0.004	0.007	0.006	0.017	0.004	0.075	0.000	473	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.841
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.158
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.447	0.005	0.009	0.009	0.022	0.006	0.099	0.000	631	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.631
														Total	**1.08**	**0.04**	**0.03**	**0.03**	**1.00**	**0.021**	**0.314**	**0.004**	**2257**	**0.007**	**0.001**	**0.0003**	**0.0003**	**0.021**	**0.000**	**0.003**	**0.0001**	**25.31**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	10	50	44	0.4263	0.1069	0.469927	0.117884376	0.010338	0.002593
Light-Duty Truck - LDT2 (offsite)	1	1	22	50	44	0.4273	0.1073	1.036272	0.260197053	0.022798	0.005724
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	8	0.4642	0.1202	0.005117	0.001325191	0.000020	0.000005
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	12	0.4920	0.1299	0.162710	0.042971486	0.000976	0.000258
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	2	0.4920	0.1299	0.054237	0.014323829	0.000054	0.000014
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.4920	0.1299	0.216947	0.057295314	0.000217	0.000057
							Total	**1.945210**	**0.493997**	**0.034404**	**0.008653**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 7: Exterior Improvements

On-Site Sources

Source	BHP	Load Factor	Number	Hours/ Day*	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	--	--	1	0.000	0	--	2.600	--	--	--	--	--	--	--	--	0.0000	--	--	--	--	--	--	--	--	0.000	--	--	--	--	--	--	--
Architectural Coating	--	--	1	417.8	22	--	50.0	--	--	--	--	--	--	--	--	0.4605	--	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Backhoe	125	37	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Crane	250	29	1	0	0	22.000	0.060	0.008	0.008	2.200	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Compressor-1	100	48	1	8	22	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.001	0.000	0.000	0.034	0.000	0.000	0.000	5.29
Compressor-2	100	48	1	8	22	0.260	0.060	0.008	0.008	3.700	0.006	0.004	0.032	568	0.220	0.051	0.007	0.007	3.132	0.005	0.004	0.0271	481	0.002	0.001	0.000	0.000	0.034	0.000	0.000	0.000	5.29
Dozer	200	43	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.153	474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Excavator	160	38	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Generator-1	25	74	1	8	22	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.897	0.039	0.003	0.003	1.338	0.002	0.001	0.0202	185	0.010	0.000	0.000	0.000	0.015	0.000	0.000	0.000	2.04
Generator-2	25	74	1	0	0	2.750	0.120	0.008	0.008	4.100	0.007	0.004	0.062	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Grader	150	41	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.155	478	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Lift-1	50	20	1	6	22	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.362	0.016	0.001	0.001	0.489	0.001	0.001	0.0225	69.5	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.76
Lift-2	50	20	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.170	525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-1	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Loader-2	250	36	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Machine	100	42	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.152	470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Equipment	100	36	1	0	0	0.260	0.060	0.008	0.008	3.700	0.005	0.004	0.153	473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Paving Roller	50	38	1	0	0	2.740	0.120	0.008	0.008	3.700	0.005	0.004	0.080	568	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-1	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Scraper-2	475	48	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.152	471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
Water Truck-1	400	38	1	0	0	0.260	0.060	0.008	0.008	2.200	0.005	0.004	0.154	475	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
														Total	**1.700**	**0.62**	**0.02**	**0.017**	**8.092**	**0.013**	**0.009**	**0.097**	**1217**	**0.019**	**0.007**	**0.000**	**0.000**	**0.089**	**0.000**	**0.000**	**0.001**	**13.39**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	8	50	22	0.0455	0.0079	0.0010	0.0009	0.657	0.0027	0.0048	0.002	270	0.040	0.007	0.001	0.001	0.579	0.002	0.004	0.002	238.1	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	2.619
Light-Duty Truck - LDT2 (offsite)	1	1	17	50	22	0.0533	0.0093	0.0051	0.0049	0.094	0.0027	0.0446	0.000	283	0.100	0.017	0.010	0.009	0.177	0.005	0.083	0.001	530	0.001	0.000	0.000	0.000	0.002	0.000	0.001	0.000	5.830
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	4	0.2961	0.0041	0.0045	0.0043	0.023	0.0092	0.1526	0.000	969	0.003	0.000	0.000	0.000	0.000	0.000	0.002	0.000	10.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	6	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.335	0.004	0.007	0.006	0.017	0.004	0.075	0.000	473	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.420
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.112	0.001	0.002	0.002	0.006	0.001	0.025	0.000	158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	1.0140	0.0114	0.0203	0.0195	0.050	0.0136	0.2256	0.001	1432	0.447	0.005	0.009	0.009	0.022	0.006	0.099	0.000	631	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.631
														Total	**1.04**	**0.03**	**0.03**	**0.03**	**0.80**	**0.019**	**0.288**	**0.003**	**2041**	**0.003**	**0.0003**	**0.0001**	**0.0001**	**0.008**	**0.0001**	**0.001**	**0.00003**	**10.60**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	8	50	22	0.4263	0.1069	0.375942	0.094307501	0.004135	0.001037
Light-Duty Truck - LDT2 (offsite)	1	1	17	50	22	0.4273	0.1073	0.800756	0.201061359	0.008808	0.002212
Med-Heavy Duty - T6 Utility (offsite)	1	1	1	5	4	0.4642	0.1202	0.005117	0.001325191	0.000010	0.000003
Heavy Duty Trucks - T7TC (offsite)	1	1	3	50	6	0.4920	0.1299	0.162710	0.042971486	0.000488	0.000129
Heavy Duty Trucks - T7TC (offsite)	1	1	1	50	1	0.4920	0.1299	0.054237	0.014323829	0.000027	0.000007
Heavy Duty Trucks - T7TC (offsite)	1	1	4	50	2	0.4920	0.1299	0.216947	0.057295314	0.000217	0.000057
							Total	**1.615708**	**0.411285**	**0.013686**	**0.003445**

Notes:

Hours per day and durations estimated and approved by client.

Round trips for supplies deliveries, equipment and trash pickups estimated from within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

Round trips for LDA and LDT2 is estimated from within within Fresno, Kern, Kings, Madera or Tulare counties (approximatley 50-miles).

* Asphalt in acres per day

* Architectural Coating in liters per day

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COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 8: Construction - Fugitive Dust Emissions - Phase 1

Construction

Activity	Source	Source Units	Number of Days	Emission Factor	Emission Factor, Units	Peak Day Emissions (lbs/day)		Total Emissions (tons)	
						PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Grading									
Site Grading	4.6	acres/day	33	1.1	lbs PM10/day/acre	5.0667	0.4606	0.0836	0.0127
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	10.0	vehicle-miles/day	33	2.59	lbs/vehicle-mile	25.9006	2.5901	0.4274	0.0647
					Max/Total	**30.967**	**3.051**	**0.511**	**0.0774**
Utilities									
Site Grading	0.01	acres/day	33	1.1	lbs PM10/day/acre	0.0110	0.0010	0.0002	0.0000
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	6.0	vehicle-miles/day	33	2.59	lbs/vehicle-mile	15.5404	1.5540	0.2564	0.0388
					Max/Total	**15.551**	**1.555**	**0.257**	**0.0389**
Vertical Construction									
Site Grading	0.00	acres/day	264	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	5.0	vehicle-miles/day	264	2.59	lbs/vehicle-mile	12.9503	1.2950	1.7094	0.2589
					Max/Total	**12.950**	**1.295**	**1.709**	**0.2589**
Flatwork and Paving									
Site Grading	0.50	acres/day	33	1.1	lbs PM10/day/acre	0.5500	0.0500	0.0091	0.0014
Truck Loading & Dumping (Grading Phase)	247	tons/day	33	1.72E-04	lbs/ton	0.0425	0.00644	0.000701	0.000106
Vehicle Miles Off-Road	2.0	vehicle-miles/day	33	2.59	lbs/vehicle-mile	5.1801	0.5180	0.0855	0.0129
					Max/Total	**5.773**	**0.574**	**0.095**	**0.0144**
Interior Finishing									
Site Grading	0.00	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	2.59	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.000**	**0.0000**
Exterior Improvements									
Site Grading	0.0	acres/day	0	1.1	lbs PM10/day/acre	0.0000	0.0000	0.0000	0.0000
Truck Loading & Dumping (Grading Phase)	0	tons/day	0	1.72E-04	lbs/ton	0.0000	0.0000	0.0000	0.0000
Vehicle Miles Off-Road	0.00	vehicle-miles/day	0	2.59	lbs/vehicle-mile	0.0000	0.0000	0.0000	0.0000
					Max/Total	**0.000**	**0.000**	**0.0000**	**0.0000**

Fugitive Dust Emissions: Inputs for the Table

Emission factors based on following inputs		
Mean number of rain days per year	*0*	*worst case*
Silt content of soil, fill storage pile, %	*1.5*	*SCAQMD default value*
Roadway inputs (paved and unpaved, as per URBEMIS)		
Roads mean vehicle weight, tons	*20.61*	*based on project description, HHDT + LDT and vehicles weight (average of full and empty)*
unpaved dirt road silt content, %	*8.4*	*AP-42 construction sites*
Truck Loading inputs		
k, particle size multiplier, default=0.35 fpr pm10	*0.35*	
U, mean wind speed, mph range 1.3-15	*8.15*	
M, moisture content, default=12%	*12*	
PM2.5/PM10 ratio truck loading	*0.15*	
Site grading emissions from CalEEMod for grading	*0.091*	*ratio of PM2.5/PM10 CalEEMod*
Demolition materials, tons/yds3	*1.000*	*estimated for concrete debris*

Fill materials, tons/yds3	*1.000*	*estimated for soils*
Mitigation: demolition area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: grading/dist area watering (fraction reduction)	*0.00*	*0.61 for watering every 3 hours (SCAQMD)*
Mitigation: dumping soil moisture (fraction reduction)	*0.00*	*0.69 for minimum 12% soil moisture (SCAQMD)*
Mitigation: storage piles (fraction reduction)	*0.00*	*0.90 for watering by hand and covering (SCAQMD)*
Mitigation: roads (fraction reduction)	*0.00*	*0.55 for watering 3X per day (SCAQMD), 0.80 for soil binders applied monthly (AP-42)*

Notes:

PM2.5/PM10 ratio as per AP-42 k factor for PM10 and PM2.5
Demolition dust calculations as per EPA AP-42 11.19 and 13.2.4
Truck loading dumping cut/fill based on CalEEMod
Storage pile emissions based on SCAQMD Handbook (URBEMIS does not address emissions from storage piles)
Paved and unpaved road dust emissions based on AP-42 2006 (unpaved) Chapt 13. EPA AP-42 2006 is the same as URBEMS and CalEEMod
One month assumes 22 days of activity, as per URBEMIS

COPPER RIDGE SUBDIVISON DEVELOPMENT
CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS
TABLE 9: Emission Factors and Assumptions

Onsite Construction				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Asphalt Fugitive	EF = lb/acre	--	--	--	2.60	--	--	--	--	--	--	--	--	2.6000	--	--	--	--	--	--	--
Architectural Coating	EF = g/L	--	--	--	50	--	--	--	--	--	--	--	--	0.1102	--	--	--	--	--	--	--
Backhoe	4	125	37	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	469	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0349
Crane	4	250	29	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0427
Compressor-1	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Compressor-2	4	100	48	0.260	0.060	0.008	0.008	3.700	0.006	0.0042	0.032	568	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00007	1.2529
Dozer	4	200	43	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.153	474	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0450
Excavator	4	160	38	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	472	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0415
Generator-1	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Generator-2	4	25	74	2.750	0.120	0.008	0.008	4.100	0.007	0.0042	0.062	568	0.0061	0.0003	0.0000	0.0000	0.0090	0.00002	0.00001	0.00014	1.2529
Grader	4	150	41	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.155	478	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0549
Lift-1	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Lift-2	4	50	20	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.170	525	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00037	1.1585
Loader-1	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Loader-2	4	250	36	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0357
Paving Machine	4	100	42	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.152	470	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0367
Paving Equipment	4	100	36	0.260	0.060	0.008	0.008	3.700	0.005	0.0042	0.153	473	0.0006	0.0001	0.0000	0.0000	0.0082	0.00001	0.00001	0.00034	1.0432
Paving Roller	4	50	38	2.740	0.120	0.008	0.008	3.700	0.005	0.0042	0.080	568	0.0060	0.0003	0.0000	0.0000	0.0082	0.00001	0.00001	0.00018	1.2529
Scraper-1	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Scraper-2	4	475	48	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.152	471	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0393
Water Truck-1	4	400	38	0.260	0.060	0.008	0.008	2.200	0.005	0.0042	0.154	475	0.0006	0.0001	0.0000	0.0000	0.0049	0.00001	0.00001	0.00034	1.0477

Offsite Trasporation			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Luis Obispo County	0.0455	0.0079	0.0010	0.0009	0.6569	0.0027	0.0048	0.0020	270.0	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5953
Light-Duty Truck - LDT2 (offsite)	--	San Luis Obispo County	0.0533	0.0093	0.0051	0.0049	0.0944	0.0027	0.0446	0.0004	282.8	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00010	0.00000	0.6235
Med-Heavy Duty - T6 Utility (offsite)	--	San Luis Obispo County	0.2961	0.0041	0.0045	0.0043	0.0228	0.0092	0.1526	0.0002	968.8	0.0007	0.0000	0.0000	0.0000	0.0001	0.00002	0.00034	0.00000	2.1358
Heavy Duty Trucks - T7TC (offsite)	--	San Luis Obispo County	1.0140	0.0114	0.0203	0.0195	0.0499	0.0136	0.2256	0.0005	1432	0.0022	0.0000	0.0000	0.0000	0.0001	0.00003	0.00050	0.00000	3.1566

Offsite Dust - Mobile Sources			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Luis Obispo County	0.4263	0.1069	0.000940	0.000236
Light-Duty Truck - LDT2 (offsite)	--	San Luis Obispo County	0.4273	0.1073	0.000942	0.000237
Med-Heavy Duty - T6 Utility (offsite)	--	San Luis Obispo County	0.4642	0.1202	0.001023	0.000265
Heavy Duty Trucks - T7TC (offsite)	--	San Luis Obispo County	0.4920	0.1299	0.001085	0.000286

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020.*
- Vehicle emissions factors obtained from EMFAC-2021

COPPER RIDGE SUBDIVISON DEVELOPMENT

CRITERIA POLLUTANTS & GREENHOUSE GAS EMISSIONS

Model Run: March 20, 2024

TABLE 1: OPERATIONAL EMISSIONS SUMMARY

Source	Peak Day Emissions (lbs/day)													Annual Emissions (tons/yr)												
	NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	$PM_{10}E$*	$PM_{10}D$	$PM_{10}T$	$PM_{2.5}E$*	$PM_{2.5}D$	$PM_{2.5}T$	CO	SO_2	N_2O	CH_4	CO_2	$MTCO_2e$
Operational Phase Without Residential Tenant Vehicle Trip Emissions	1.71	3.91	0.013	0.079	0.091	0.016	0.021	0.036	198	0.010	0.264	73.4	4,017	0.044	0.102	0.00004	0.002	0.002	0.0004	0.0005	0.001	5.14	0.0003	0.013	0.229	609	561
Operational Phase Residential Tenant Vehicle Trip Emissions	3.71	0.66	0.13	48.71	48.84	0.12	0.25	0.37	68.2	0.30	0.659	0.169	30,163	0.677	0.120	0.005	8.89	8.89	0.022	2.23	2.25	12.4	0.054	0.120	0.031	5,505	5,024
Total Operational Phase Emissions	**5.42**	**4.56**	**0.140**	**48.8**	**48.9**	**0.134**	**0.272**	**0.406**	**266**	**0.308**	**0.92**	**73.5**	**34,179**	**0.72**	**0.221**	**0.005**	**8.89**	**8.90**	**0.022**	**2.23**	**2.25**	**17.6**	**0.055**	**0.133**	**0.260**	**6,113**	**5,586**
SJVAPCD Operational Significance Thresholds	--	--	--	--	--	--	--	--	--	--	--	--	--	***10***	***10***	--	--	***15***	--	--	***15***	***100***	***27***	--	--	--	--
Threshold exceeded?	--	--	--	--	--	--	--	--	--	--	--	--	--	***No***	***No***	--	--	***No***	--	--	***No***	***No***	***No***	--	--	--	--
Total Yearly DPM Emissions From Onsite Diesel Engine Exhaust, tons*														*0.00048*	--	--	--	--	--	--	--	--	--	--	--	--	--
GHG - $MTCO_2E$ conversions																								***273***	***28***	***1***	--
Total Operational Phase $MTCO_2E$/yr																								***5,586***			
Amortized Construction Phase Emissions*																								***72.1***			
Total Operational Phase + Amortized Construction Phase Emissions $MTCO_2E$/yr																								***5,658***			

Notes:

- Global Warming Potentials (273 for N_2O, 27.9 for CH_4, and 1 for CO_2, Table 7.SM.6, Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report

$MTCO_2E$ - Metric Tons of Carbon Dioxide Equivalent

SJVAPCD - San Joaquin Valley Air Pollution Control District

NO_x - Oxides of Nitrogen

ROG - Reactive Organic Gases

$PM_{2.5}$ - Particulate Matter 2.5 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

PM_{10} - Particulate Matter 10 Microns or Less. An **E** suffix - indicates exhaust, **D** suffix indicates dust and **T** suffix indicates total emissions.

DPM - Diesel Particulate Matter

CO - Carbon Monoxide

SO_2 - Sulfur Dioxide

N_2O - Nitrous Oxide

CH_4 - Methane

CO_2 - Carbon Dioxide

* - Inculdes all four phases of construction.

Assumptions:

Operations assumed 7 days per week.

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TABLE 2: Operations

Landscaping Equipment Sources

Source	BHP	Load Factor	Number	Hours/ Day	Duration (days)	Emission Factors (g/bhp-hr)									Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	25	38	3	6	52	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	623.788	0.854	1.985	0.003	0.004	115.0	0.004	0.002	0.010	235.2	0.022	0.052	0.000	0.000	2.990	0.00011	0.0000	0.0003	6.1142
Trimmer	5	91	2	4	52	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	808.574	0.148	0.533	0.006	0.008	24.4	0.001	0.001	0.003	64.9	0.004	0.014	0.000	0.000	0.635	0.00003	0.0000	0.0001	1.6870
Leaf Blower	5	94	2	6	52	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658.309	0.335	0.762	0.001	0.001	32.0	0.001	0.001	0.003	81.9	0.009	0.020	0.000	0.000	0.833	0.00003	0.0000	0.0001	2.1282
Other Landscape Equipment	5	58	4	4	52	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658.309	0.275	0.627	0.001	0.001	26.4	0.001	0.001	0.003	67.3	0.007	0.016	0.000	0.000	0.685	0.00003	0.0000	0.0001	1.7509
					Total										**1.612**	**3.908**	**0.011**	**0.014**	**197.8**	**0.007**	**0.004**	**0.019**	**449.2**	**0.042**	**0.102**	**0.000**	**0.000**	**5.144**	**0.0002**	**0.000**	**0.000**	**11.680**

On-Road Sources

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)									Peak Day Emissions (lb/day)									Total Emissions (tons)								
						NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	1	1	4884	9.98	365	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267.0	3.480	0.606	0.102	0.093	67.731	0.284	0.427	0.1671	28686.6	0.635	0.111	0.000	0.017	12.361	0.052	0.078	0.031	5235
Light-Duty Truck - LDT2 (offsite)	1	1	257	9.98	365	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	260.9	0.231	0.050	0.026	0.025	0.476	0.014	0.233	0.0023	1475.8	0.042	0.009	0.005	0.005	0.087	0.003	0.042	0.000	269
Passenger Vehicle - EV LDA (offsite)	1	1	49	9.98	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00001	0.0830	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
Light-Duty Truck - EV LDT2 (offsite)	1	1	3	9.98	365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00001	0.0830	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Med-Heavy Duty - T6 Utility (offsite)	1	1	2	25	52	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	968.5	0.024	0.000	0.000	0.000	0.002	0.001	0.017	0.0000	106.8	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.78
Heavy Duty Trucks - T7TC (offsite)	2	2	1	25	52	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1478.9	0.069	0.001	0.001	0.001	0.004	0.002	0.026	0.0000	163.0	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	4.24
					Total										**3.80**	**0.657**	**0.129**	**0.120**	**68.214**	**0.300**	**0.702**	**0.1695**	**30,432.3**	**0.680**	**0.120**	**0.005**	**0.022**	**12.448**	**0.054**	**0.121**	**0.03093**	**5,511.7**

On-Road Sources - Within Development Only

Source	Peak Round Trips/Day	Average Round Trips/Day	Number of Vehicles	Length of Round Trip (miles)	Duration (days)	Emission Factors (g/mile)		Peak Day Emissions (lb/day)		Total Emissions (tons)	
						PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	1	1	4884	9.98	365	0.4263	0.1069	45.810538	11.49185205	8.360423	2.097263
Light-Duty Truck - LDT2 (offsite)	1	1	257	9.98	365	0.4272	0.1073	2.416087	0.606586418	0.440936	0.110702
Passenger Vehicle - EV LDA (offsite)	1	1	49	9.98	365	0.4248	0.1064	0.461117	0.115513896	0.084154	0.021081
Light-Duty Truck - EV LDT2 (offsite)	1	1	3	9.98	365	0.4248	0.1064	0.024269	0.006079609	0.004429	0.001110
Med-Heavy Duty - T6 Utility (offsite)	1	1	2	25	52	0.4671	0.1212	0.051484	0.013360456	0.001339	0.000347
Heavy Duty Trucks - T7TC (offsite)	1	1	1	25	52	0.4923	0.1300	0.027134	0.007167267	0.000705	0.000186
					Total			**48.790629**	**12.240560**	**8.891986**	**2.230690**

Land Use Sources

Electricity Use (Land Use)

Source	Units	Electricity Use kW/units/yr	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
			N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Housing Units	658	8,774	0.000004	0.00003	0.2040	0.06327	0.52199	3227	0.01155	0.09526	588.9
Total						**0.06327**	**0.5220**	**3227**	**0.01155**	**0.09526**	**588.9**

Land Use Sources

Electricity Use (Water Use)

Source	Water Use/Year	Emission Factor (lb/kWh)			Emissions (lb/kWh/day)			Emissions (tons/kWh/yr)		
		N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Housing Units	33,143,460	0.000004	0.00003	0.2040	0.000001	0.000012	0.07296	0.0000003	0.0000022	0.01332
Housing Unit Landscaping	17,751,451	0.000004	0.00003	0.2040	0.000001	0.000006	0.03908	0.0000001	0.0000012	0.00713
Common Landscaping	693,000	0.000004	0.00003	0.2040	0.000000	0.000000	0.00153	0.0000000	0.0000000	0.00028
Total					**0.000002**	**0.000018**	**0.113565**	**0.000000**	**0.000003**	**0.020726**

Wastewater Treatment

Source	Wastewater Generated (gallons/yr)	Emission Factor (lb/gal)			Emissions (pound/day)			Emissions (tons/year)		
		N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2
Housing Units	33,143,460	0.0000017	0.0008020	0.0007800	0.1547	72.8248	70.8271	0.00008	0.03641	0.03541
Total					**0.1547**	**72.8248**	**70.8271**	**0.0001**	**0.0364**	**0.0354**

Solid Waste

Source	Solid Waste Generated (tons/yr)	Emission Factor (tons/ton)		Emissions (pound/day)		Emissions (tons/year)	
		CH_4	CO_2	CH_4	CO_2	CH_4	CO_2
Housing Units	11.5	0.00844	0.09846	0.00029	0.0034	0.0969	1.1310
			Total	**0.0003**	**0.0034**	**0.10**	**1.13**

Notes:

- Square footage and number of units provided by client
- Occupancy rate of 100% used
- VMT and round trips for LDA and LDT2 were obtained from traffic studies.
- Assumes 1% of vehicles will be electric vehicles.

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TABLE 3: Operational Emission Factors and Assumptions

Onsite Maintenance

				Emission Factors (g/bhp-hr)									Emission Factors (lb/bhp-hr)								
Source	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Riding Lawn Mower	--	25	38	2.265	5.266	0.008	0.010	305.040	0.011	0.005	0.026	624	0.0050	0.0116	0.0000	0.0000	0.6725	0.00002	0.00001	0.00006	1.3752
Trimmer	--	5	91	1.850	6.648	0.076	0.101	304.458	0.012	0.007	0.034	809	0.0041	0.0147	0.0002	0.0002	0.6712	0.00003	0.00002	0.00007	1.7826
Leaf Blower	--	5	94	2.693	6.132	0.008	0.010	257.695	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513
Other Landscape Equipment	--	5	58	2.691	6.126	0.008	0.010	257.697	0.010	0.006	0.028	658	0.0059	0.0135	0.0000	0.0000	0.5681	0.00002	0.00001	0.00006	1.4513

Onsite

				Emission Factors, g/kBTU									Emission Factors (lb/kBTU)								
Source	Tier	Operational Horsepower	Load Factor	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Natural Gas Residential	--	--	--	0.041802	0.002446	0.003380	0.003380	0.017788	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977
Natural Gas Commercial	--	--	--	0.044470	0.002446	0.003380	0.003380	0.037355	0.000267	0.000100	0.004696	53.059937	0.000092	0.000005	0.000007	0.000007	0.000039	0.000001	0.000000	0.000010	0.116977

Offsite

			Emission Factors (g/mile)									Emission Factors (lb/mile)								
Source	Tier	Region	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2	NO_x	ROG	PM_{10}	$PM_{2.5}$	CO	SO_2	N_2O	CH_4	CO_2
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.0324	0.0056	0.0009	0.0009	0.6303	0.0026	0.0040	0.0016	267	0.0001	0.0000	0.0000	0.0000	0.0014	0.00001	0.00001	0.00000	0.5885
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000002	0.00001	0.0830	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0002
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.0409	0.0088	0.0046	0.0044	0.0842	0.0025	0.0411	0.0004	261	0.0001	0.0000	0.0000	0.0000	0.0002	0.00001	0.00009	0.00000	0.5753
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000002	0.00001	0.0830	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.0002
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.2187	0.0036	0.0041	0.0039	0.0215	0.0092	0.1526	0.0002	969	0.0005	0.0000	0.0000	0.0000	0.0000	0.00002	0.00034	0.00000	2.1352
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.6279	0.0072	0.0110	0.0105	0.0373	0.0140	0.2330	0.0003	1479	0.0014	0.0000	0.0000	0.0000	0.0001	0.00003	0.00051	0.00000	3.2604

Offsite Dust - Mobile Sources

			Emission Factors (g/mile)		Emission Factors (lb/mile)	
Source	Tier	Region	PM_{10}Dust	$PM_{2.5}$Dust	PM_{10}Dust	$PM_{2.5}$Dust
Passenger Vehicle - LDA (offsite)	--	San Joaquin Valley	0.4263	0.1069	0.000940	0.000236
Passenger Vehicle - EV LDA (offsite)	--	San Joaquin Valley	0.4248	0.1064	0.000937	0.000235
Light-Duty Truck - LDT2 (offsite)	--	San Joaquin Valley	0.4272	0.1073	0.000942	0.000236
Light-Duty Truck - EV LDT2 (offsite)	--	San Joaquin Valley	0.4248	0.1064	0.000937	0.000235
Med-Heavy Duty - T6 Utility (offsite)	--	San Joaquin Valley	0.4671	0.1212	0.001030	0.000267
Heavy Duty Trucks - T7TC (offsite)	--	San Joaquin Valley	0.4923	0.1300	0.001085	0.000287

Offsite

Source	Energy Consumption (kWh/mile)
Passenger Vehicle - EV LDA (offsite)	0.40674
Light-Duty Truck - EV LDT2 (offsite)	0.40674

Electricity Emission Factors

		Emission Factors (lb/kWhr)		
Source	Electricity Use Region	N_2O	CH_4	CO_2
Electricity Usage	California	0.000004	0.00003	0.2040

Electricity Use by Land Use

Source	kWhr/Unit/Year
	Electricity
Housing Units	8,774.39

Water Energy-Intensity

Source	kWh/Gal
Project Site	0.00394

Solid Waste Disposal Rate

Source	Region	Rate (Tons/Year)
Housing Units	King County	15

Solid Waste Emissions Factors

Landfill Type	CH_4 (tons/ton)	CO_2 (tons/ton)
No Landfill Gas Collection	0.0084	0.0985

Recycling and Composting	
Recycling and Composting Program	Percentage of Waste Recycled or Composted
	25

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Water Use Rates				Water Use		
Source	**Units or Square Feet**	**Indoor Water Use (gal/unit or Square Feet per yr)**	**Outdoor Water Use (gal/unit or gal/Square Feet per yr)**	**Total Indoor Water Use (gal)**	**Total Outdoor Water Use (gal)**	**Total Water Use (gal)**
Housing Units	658	50,370	0.000	33,143,460	0.000	33,143,460
Housing Unit Landscaping	999,000	0.00	17.77	0.00	17,751,451	17,751,451
Common Landscaping	39,000	0.00	17.77	0.00	693,000	693,000
			Total	**33,143,460**	**18,444,450**	**51,587,910**

Wastewater Treatment	Emission Factor (lb/gal)		
Source	**N_2O**	**CH_4**	**CO_2**
Wastewater Treatment	0.0000017	0.000802	0.00078

Climate Zone	3

Notes:

- Equipment list and engine sizes estimated.
- Equipment criteria pollutant emission factors and load factors were obtained from CalEEMod, Appendix D 2020 and CalEEMod, Appendix G, 2022.
- Electricity and Natural Gas Emission Factors were obtained from CalEEMod, Appendix G 2022.
- Electricity Use by Land Use obtained from CalEEMod, Appendix D 2020.
- N_2O emission factors for equipment were obtained from *CFR Part 98 Table C-2 and CalEEMod Appendix D- 20164.*
- CO_2 and CH_4 emission factors for construction equipment were obtained from *CalEEMod Appendix D 2020.*
- CO_2 and CH_4 emission were obtained from *CalEEMod Appendix G 2022.*
- Vehicle emissions factors obtained from EMFAC-2021
- Solid waste and waste water emission factors and waste disposal rates obtained from CalEEMod Appendix G 2022
- Water use rates and wastewater treatment rates obtained from CalEEMod Appendix G 2022
- Waste disposal rates obtained from CalEEMod Appendix G 2022

Daily Traffic and VMT Information

VEHICLE MILES TRAVELED ANALYSIS

COPPER RIDGE MIXED-USE PROJECT

CITY OF HANFORD

KINGS COUNTY, CALIFORNIA

This Vehicle Miles Traveled Analysis has been prepared under the supervision of
Ambarish Mukherjee, P.E.

LSA

January 2025

VEHICLE MILES TRAVELED ANALYSIS

COPPER RIDGE MIXED-USE PROJECT

CITY OF HANFORD

KINGS COUNTY, CALIFORNIA

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January 2025

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1.0 EXECUTIVE SUMMARY

The proposed Copper Ridge Mixed-Use Project will be a mixed-use development including 350 single-family homes, 300 multifamily units, and approximately a total of 37,700 square feet (sf) of commercial uses, including 28,330 sf retail, two fast-food restaurant with drive-through window of areas 2,153 sf and 2,318 sf, and a gas station with approximately 4,899 sf convenience store. Additionally, the project would include parks/open space areas within the community. The proposed project would be located in the northeast corner of Grangeville Boulevard and 9 ¼ Avenue. in the City of Hanford (City), Kings County, CA. Figure 1-1 illustrates the regional and project location of the proposed project.

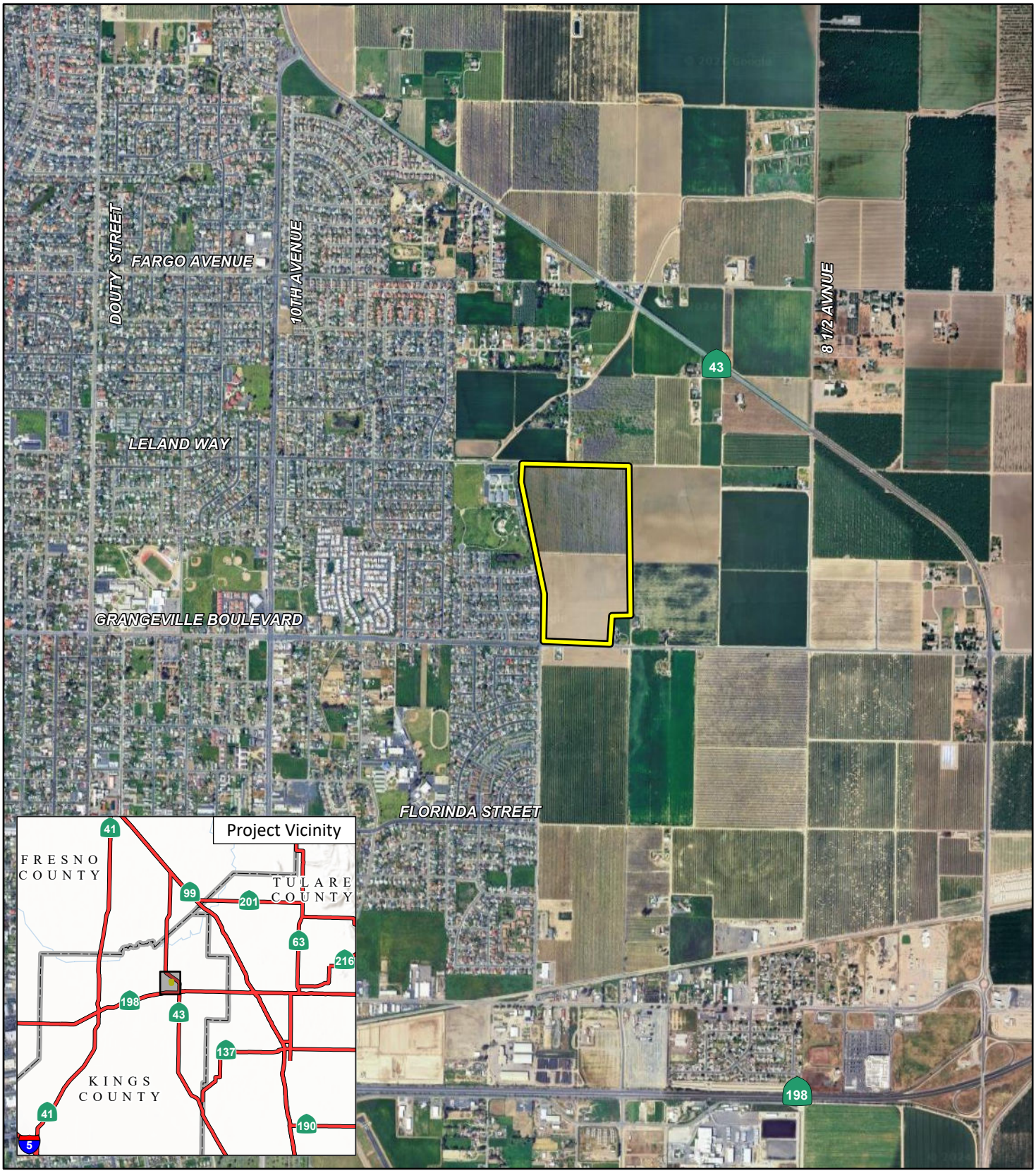
Access to the project will be provided by four driveways on 9 1/4th Avenue, three driveways on Leland Way, and one driveway on Grangeville Boulevard. Figure 1-2 illustrates the preliminary conceptual site plan of the proposed project.

The City has recently adopted the *City of Hanford VMT Thresholds and Implementation Guidelines* (VMT Guidelines), dated November 2022. Based on the VMT Guidelines, the project being a mixed-use project, individual land use components were analyzed separately for purposes of the VMT analysis. The project VMT analysis has been conducted based on the current project description. The retail/commercial component of the project could be screened out using the 55,000 sf screening criteria for retail projects. However, the residential components of the project don't meet any of the screening criteria identified in the VMT Guidelines. The VMT Guidelines further recommends that for projects/components of a project that could not be screened out using the project screening criteria, a detailed VMT analysis should be conducted using the methodology and significant threshold criteria identified in it.

Based on the VMT analysis, the residential component's VMT is lower than the significant impact thresholds identified in the City's VMT Guidelines. As such, the residential component of the project won't have any significant transportation impact under CEQA. Therefore, given the retail component of the project is screened out, the entire project won't have any significant VMT impact.

1.1 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Conceptual Site Plan



LSA

LEGEND

Project Location

FIGURE 1-1

N

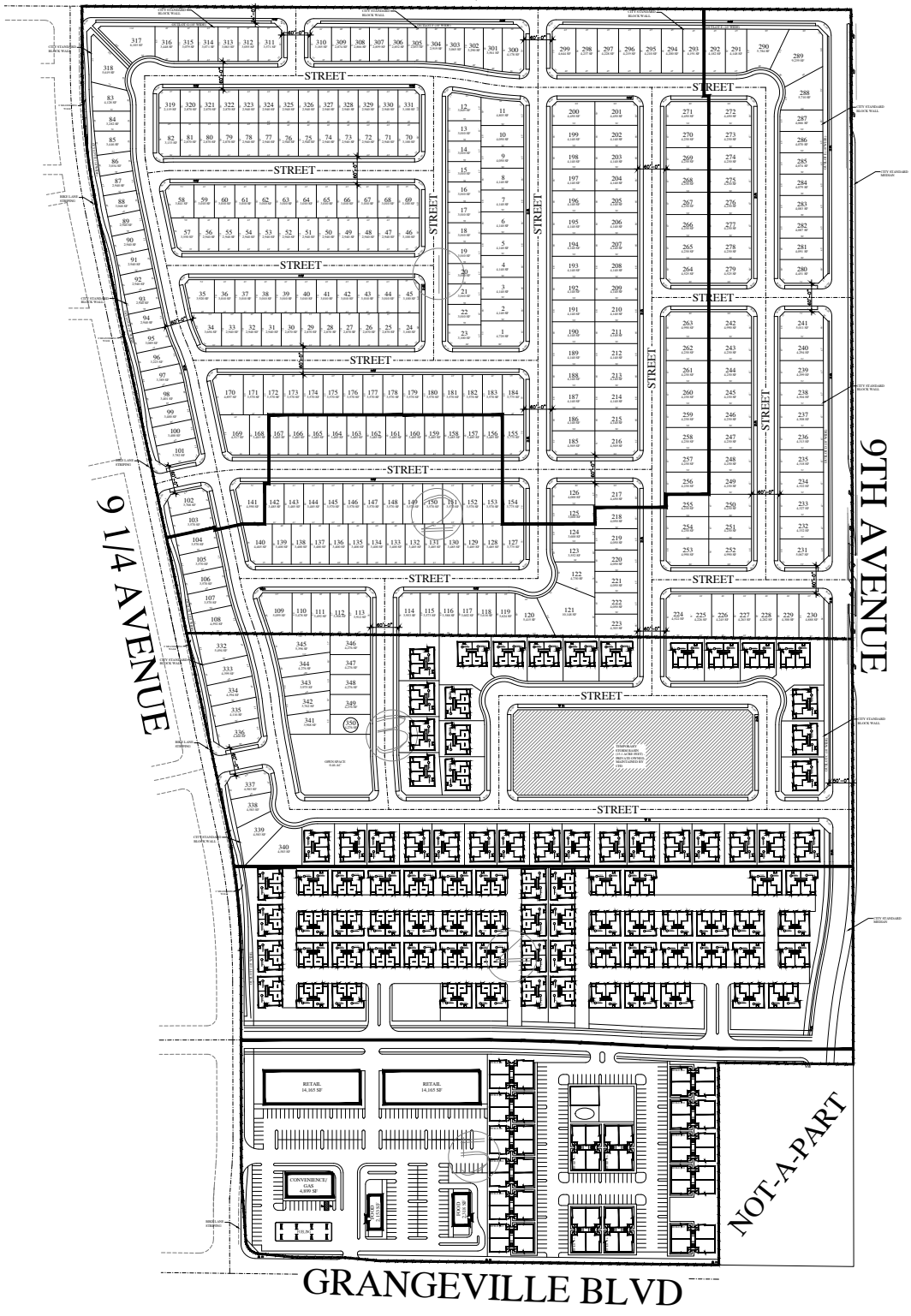
0 1000 2000

FEET

Copper Ridge Mixed-Use Project
Vehicle Miles Traveled Analysis
Regional and Project Location

SOURCE: ESRI Streetmap, 2021; Google Earth 2024.

P:\2024\20242098 Copper Ridge\GIS\20242098 Copper Ridge\20242098 Copper Ridge.aprx (1/13/2025)



LSA

FIGURE 1-2

N

0 160 320

FEET

Copper Ridge Mixed-Use Project
Vehicle Miles Traveled Analysis

Conceptual Site Plan

SOURCE: AWEngineering, January 2025

P:\2024\20242098 Copper Ridge\G\Fig1-2_Conceptual Site_Plan.ai (1/13/2025)

2.0 VEHICLE MILES TRAVELED ANALYSIS

2.1 BACKGROUND

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on Vehicle Miles Traveled (VMT) generated by the project.

The City has adopted the *City of Hanford VMT Thresholds and Implementation Guidelines* (VMT Guidelines) in November 2022. Therefore, the project VMT analysis was conducted using the methodology and significant threshold criteria identified in the City's VMT Guidelines. As previously mentioned, the project includes residential and retail/commercial land uses. As per the VMT Guidelines, mixed-use projects should be evaluated separately for each component of the project. Therefore, each project component was analyzed separately.

2.2 METHODOLOGY

2.2.1 Project VMT Screening Analysis

The VMT Guidelines include multiple screening criteria for small land use projects or project components to be screened out of a detailed VMT analysis.

The screening thresholds and their applicability to the project site are as follows:

- **Transit Priority Area Screening:** The project location was compared against the Transit Priority Area from the City of Hanford VMT Screening Tool. Since the project is not located within any Transit Priority Area, this screening criteria does not apply for the project.
- **Local-serving Retail:** Based on the VMT Guidelines, retail projects with a combined area of less than 55,000 sf could be classified as local-serving and could be screened out from a detailed VMT analysis. As summarized in Chapter 1 of this report, the retail component of the project is approximately 37,700 sf, which is less than 55,000 sf. Therefore, the retail component of the project could be screened out using this criterion and a detailed VMT analysis will not be required for this project component.
- **Redevelopment Project:** The project site is currently vacant. Therefore, this criterion is not applicable for the project.
- **Affordable Housing Project:** The residential component of the project proposes market rate single-family and multifamily residential development. Therefore, this criterion is not applicable for the residential component of project.
- **Average Daily Trip Threshold:** Given the size of the project, the project is estimated to generate significant number of trips and could not be screened using the daily trip threshold criteria, which is 500 daily trips for projects requiring a General Plan Amendment (GPA), and 1,000 daily trips for projects not requiring a GPA.
- **Institutional/Government and Public Service Project:** The project land uses could not be classified as Institutional/government and public service land uses, including police stations,

fire stations, government offices, utilities, public libraries, community centers, and refuse stations. Therefore, this criterion is not applicable for the project.

- **Specific Land Use Screening:** As included in the VMT Guidelines, local parks, daycare centers, student housing projects on or adjacent to a college campus, local serving gas stations, banks, and K–12 public schools could be screened out from detailed VMT analysis. As previously mentioned, the project would include a gas station, which would be part of the commercial component of the project and eligible to be screened out. Also, the park/open space component of the project could be screened out using this criterion and a detailed VMT analysis will not be required.
- **Low VMT Area Screening:** The project site was evaluated using City of Hanford VMT Screening Tool to determine if the project is located within a low VMT area. Per the VMT Screening Tool, the project comprises of Kings County Association of Governments (KCAG) Travel Demand Model's traffic analysis zone (TAZ) # 657. Based on the evaluation, the project is not in a low VMT area for the residential components. As such, the project's residential components could not be screened out using this criterion.

As noted above, the retail component of the project is screened out using the screening criteria and no further VMT analysis would be required for that component. However, the residential components of the project don't meet any of the screening criteria identified in the guidelines. Therefore, a detailed VMT analysis was conducted to evaluate the VMT impact of these residential components.

2.2.2 VMT Metrics and Thresholds

The VMT Guidelines provide guidance regarding VMT analysis based on land use types. It recommends use of VMT per capita metric to evaluate residential land uses, and VMT per employee for office uses.

The VMT Guidelines also established Kings County as the region and 13 percent as the threshold for comparison of VMT metrics. Therefore, if the project VMT per capita exceeds 87 percent of corresponding Kings County baseline average VMT per capita, the residential component of the project would have a significant VMT impact.

For projects that require a detailed VMT analysis, the guidelines recommend use of KCAG model to conduct the VMT analysis. Therefore, KCAG model was used for the VMT evaluation of the project. Numerical values for the VMT metric threshold have been obtained from Table E: Significance Thresholds for VMT Analysis of the VMT Guidelines.

2.2.3 Project Traffic Analysis Zone Update

To calculate the project VMT, the first step was to update the TAZs in the model that include the project area. The project should be isolated in the travel model to estimate project VMT. The KCAG model includes ability to split or add new TAZ. Therefore, three separate TAZs were added to the model to incorporate the project's single-family, multifamily, and retail land uses. Single-family and multifamily residential uses have been separated into two TAZs because they have different household characteristics such as household size and household income. Typically, single-family residential developments have a higher household size, higher auto ownership, and higher income

compared to multifamily developments. Creating new TAZs for the project help isolate project VMT and determine project specific VMT impact.

KCAG model is a socioeconomic data-based model. Therefore, in addition to the number of households, the model requires other household characteristics such as household income and household size as inputs to the socioeconomic database. The household attributes such as size and income determine the number of trips and their trip lengths. For example, based on ITE *Trip Generation Manual*, (11th edition), a single-family dwelling unit will have 9.4 daily trips, whereas a multifamily unit will have 6.7 daily trips in average. Generally, higher household sizes contribute to higher number of trips and similarly higher income households have more and longer trips. The trip rates in the travel model are disaggregated by different household attributes which are based on regional household travel survey, and census data. These household variables for the project dwelling units were obtained from similar TAZs within the City. Appropriate socioeconomic data for each of the residential land uses were included in the model prior to conducting the VMT analysis model run.

It should be noted that though the retail component of the project was screened out, one separate TAZ was created in the model to include the retail land uses. Inclusion of retail uses will appropriately reflect the internal capture within the project. This is because, presence of retail in proximity of residential uses will help reduce the overall VMT of the project. The retail land use was converted to model socioeconomic data. The land use to employee conversion factors were developed using ITE *Trip Generation Manual*, 11th edition for project retail uses. The ITE trip generation manual includes trip generation rates for different land use categories by different units such as square footage, number of units, and/or number of employees. Employee/square footage rate was determined for these uses by dividing the daily trip rate per 1,000 sf by daily trip rate per employee. This ratio was used to estimate number of employees per square feet for the retail use which in turn was used to estimate total project retail employees. Model run was conducted for this updated model after incorporating the project land uses as described above. The outputs from this updated model run were utilized to estimate project specific VMT metrics. No project specific roadway network modifications were conducted for the model runs.

2.3 VMT ANALYSIS

Table 2-A shows the result of the VMT analysis for the residential component of the project. As shown in Table 2-A, VMT per capita for residential component of the project is lower than the regional threshold. As such, based on the VMT analysis, the residential component will not have any significant VMT impact. As such, since all the components of the project could be either screened out or would have a less than significant VMT impact, the entire project will have a less than significant VMT impact.

Detailed VMT calculation for the project is included in Appendix A.

2.4 LIST OF CHAPTER 2.0 TABLES

- Table 2-A: Regional Threshold and Project VMT

Table 2-A: Regional Thresholds and Project VMT

Metric	Threshold[1]	Project	Difference
VMT per Capita	8.99	8.98	(0.01)

Source: KCAG Model.
The Kings County VMT per capita was obtained from City of Hanford VMT Guidelines, (November 2022).
VMT = vehicle miles traveled

APPENDIX A:

VMT CALCULATIONS

LSA

Appendix A - VMT Calculation - Copper Ridge Residential Componenet

Table 1 - VMT per Capita Calculations

2015	Total Project Residential	Threshold
Households (a)	650	
Population (b)	1,805	
Homebased (HB) VMT ('c)	16,215	
HB VMT per capita (d = c/b)	8.98	8.99

Source: KCAG Model

The Kings County VMT per capita threshold was obtained from City of Hanford VMT Guidelines, (November 2022).

VMT = vehicle miles traveled

From: Charley Clouse
To: Robert Vander Weele
Cc: Andrew Mangano;
Subject: Re: Draft Traffic Report/Copper Ridge Thursday,
Date: January 2, 2025 9:08:50 AM
Attachments: image.png
image.png
image.png

Robert,

Looking at the Revised Copper Ridge Project, the calculation/estimate for daily trips can be derived from the traffic study and the ITE Trip Generation Manual, The traffic study estimates that 12,091 daily trips will be generated by the Project. The table below taken from the Traffic Study provides a summary of the total trip generation estimates by and use. As a reminder, pass by trips do not apply to residential trips as those are primary trips. Therefore, the pass by factors are only applicable to the retail uses.

Table 2

Copper Ridge Project

Trip Generation

Land Use			Trips				
				AM Peak Hour		PM Peak Hour	
		Units	Daily	Enter	Exit	Enter	Exit
Residential	Single family	350	3,195	58	175	203	120
	Multi-family	300	1,998	28	88	95	56
Retail	Mini-mart (16 pumps)*	4,899	3,383	129	129	148	148
	Fast food	2,153	1,005	49	47	37	34
	Fast food	2,318	1,085	53	50	40	37
	Shops	28,330	1,425	34	23	82	82
	Totals		**12,091**	**350**	**512**	**604**	**475**

Applying expected pass-by factors to the retail uses, would result in approximately 7,939 new trips added as a result of the Copper Ridge Project. Again, this would be total trips at the driveways, not new trips. I would caution use of these numbers for AQ analysis as they represent a different application of the ITE Trip Generation data sets. That said, I believe this represents reasonable estimates of daily trips.

Copper Ridge Project

Pass-by trips from existing traffic

Land Use		Units	Pass-by Trips				
			Daily	AM Peak Hour		PM Peak Hour	
				Enter	Exit	Enter	Exit
Residential *	Single family	356	-	0	0	0	0
	Multi-family	302	-	0	0	0	0
Retail	Mini-mart (16 pumps)	4,900	2,537	98	98	111	111
	Fast food	2,153	503	24	24	20	19
	Fast food	2,318	543	26	25	22	20
	Shops	28,700	570	14	9	33	33
Totals			**4,152**	**162**	**156**	**186**	**183**

Table 3

Copper Ridge Project

Net New Trips

Land Use		Units	New Trips from Project				
			Daily	AM Peak Hour		PM Peak Hour	
				Enter	Exit	Enter	Exit
Residential *	Single family	356	3,195	58	175	203	120
	Multi-family	302	1,998	28	88	95	56
Retail	Mini-mart (16 pumps)	4,900	846	31	31	37	37
	Fast food	2,153	503	24	24	17	15
	Fast food	2,318	543	26	25	18	17
	Shops	28,700	855	20	14	49	49
Totals			**7,939**	**188**	**356**	**418**	**292**

Let me know if you have any questions or need any additional information.
Charley

Prioritization Screening Calculations

Name — Prioritization Calculator

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.
Author or updater	Robert Vander Weele — *Last Update* January 22, 2025

Facility: Proposed Copper Ridge Residential Development
ID#: N/A
Project #: 2402-3001
Unit and Process#: Construction Project

Construction

Operating Hours hr/yr* 2,000.00

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	8.3160	0.0540	0.0000	8.3160
100≤R<250 0.250	2.0790	0.0135	0.0000	2.0790
250≤R<500 0.040	0.3326	0.0022	0.0000	0.3326
500≤R<1000 0.011	0.0915	0.0006	0.0000	0.0915
1000≤R<1500 0.003	0.0249	0.0002	0.0000	0.0249
1500≤R<2000 0.002	0.0166	0.0001	0.0000	0.0166
2000<R 0.001	0.0083	0.0001	0.0000	0.0083

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

* - Based on 250 work days per year 8 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Construction

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)***	Maximum Hourly (lbs/hr)**	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	3.60E+00	1.17E-02	3.60E+00	1.17E-02	1.80E-03	8.32E+00	5.40E-02	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Totals	**8.32E+00**	**5.40E-02**	**0.00E+00**

Name	Prioritization Calculator									
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.									
Author or updater	Robert Vander Weele	*Last Update*	January 22, 2025							
Facility: Proposed Copper Ridge Residential Development **ID#:** N/A **Project #:** 2402-3001 **Unit and Process#:** Operational Project	Operations - Year 1									
Operating Hours hr/yr*	8,760.00									

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	0.5544	0.0008	0.0000	0.5544
100≤R<250 0.250	0.1386	0.0002	0.0000	0.1386
250≤R<500 0.040	0.0222	0.0000	0.0000	0.0222
500≤R<1000 0.011	0.0061	0.0000	0.0000	0.0061
1000≤R<1500 0.003	0.0017	0.0000	0.0000	0.0017
1500≤R<2000 0.002	0.0011	0.0000	0.0000	0.0011
2000<R 0.001	0.0006	0.0000	0.0000	0.0006

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Cumene	98828

* - Based on 365 work days per year 24 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Operations - Year 1

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)***	Maximum Hourly (lbs/hr)**	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	2.40E-01	1.17E-02	2.40E-01	1.17E-02	2.74E-05	5.54E-01	8.22E-04	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Name	Prioritization Calculator										
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.										
Author or updater	Robert Vander Weele	*Last Update*	January 22, 2025								
Facility: Proposed Copper Ridge Residential Development **ID#:** N/A **Project #:** 2402-3001 **Unit and Process#:** Operational Project	Operations - Year 2										
Operating Hours hr/yr*	8,760.00										

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	1.1088	0.0016	0.0000	1.1088
100≤R<250 0.250	0.2772	0.0004	0.0000	0.2772
250≤R<500 0.040	0.0444	0.0001	0.0000	0.0444
500≤R<1000 0.011	0.0122	0.0000	0.0000	0.0122
1000≤R<1500 0.003	0.0033	0.0000	0.0000	0.0033
1500≤R<2000 0.002	0.0022	0.0000	0.0000	0.0022
2000<R 0.001	0.0011	0.0000	0.0000	0.0011

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Zinc	7440666

* - Based on 365 work days per year 24 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Operations - Year 2

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)***	Maximum Hourly (lbs/hr)**	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	4.80E-01	1.17E-02	4.80E-01	1.17E-02	5.48E-05	1.11E+00	1.64E-03	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Totals	**1.11E+00**	**1.64E-03**	**0.00E+00**

Name	Prioritization Calculator									
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.									
Author or updater	Robert Vander Weele	*Last Update*	January 22, 2025							
Facility: Proposed Copper Ridge Residential Development **ID#:** N/A **Project #:** 2402-3001 **Unit and Process#:** Operational Project	Operations - Year 3									
Operating Hours hr/yr*	8,760.00									

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	1.6632	0.0025	0.0000	1.6632
100≤R<250 0.250	0.4158	0.0006	0.0000	0.4158
250≤R<500 0.040	0.0665	0.0001	0.0000	0.0665
500≤R<1000 0.011	0.0183	0.0000	0.0000	0.0183
1000≤R<1500 0.003	0.0050	0.0000	0.0000	0.0050
1500≤R<2000 0.002	0.0033	0.0000	0.0000	0.0033
2000<R 0.001	0.0017	0.0000	0.0000	0.0017

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Zinc oxide	1314132

* - Based on 365 work days per year 24 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Operations - Year 3

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)***	Maximum Hourly (lbs/hr)**	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	7.20E-01	1.17E-02	7.20E-01	1.17E-02	8.22E-05	1.66E+00	2.47E-03	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Name	Prioritization Calculator									
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.									
Author or updater	Robert Vander Weele	*Last Update*	January 22, 2025							
Facility: Proposed Copper Ridge Residential Development **ID#:** N/A **Project #:** 2402-3001 **Unit and Process#:** Operational Project	Operations - Year 4									
Operating Hours hr/yr*	8,760.00									

Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	2.2176	0.0033	0.0000	2.2176
100≤R<250 0.250	0.5544	0.0008	0.0000	0.5544
250≤R<500 0.040	0.0887	0.0001	0.0000	0.0887
500≤R<1000 0.011	0.0244	0.0000	0.0000	0.0244
1000≤R<1500 0.003	0.0067	0.0000	0.0000	0.0067
1500≤R<2000 0.002	0.0044	0.0000	0.0000	0.0044
2000<R 0.001	0.0022	0.0000	0.0000	0.0022

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Zinc oxide	1314132

* - Based on 365 work days per year 24 hours per day
** - Based on max daily PM10 emissions.
*** - Annual PM10 emissions for mobile diesel emissions sources only

Operations - Year 4

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Corrected Annual Emissions (lbs/yr)	CorrectedMaximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	9.60E-01	1.17E-02	9.60E-01	1.17E-02	1.10E-04	2.22E+00	3.29E-03	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
		0.0000			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
							Totals	**2.22E+00**	**3.29E-03**	**0.00E+00**

Prioritization Scores By Year for Residential and Commercial Project										
Receptor Proximity and Proximity Factors		Construction Year 1	Construction Year 2	Construction Year 3	Construction Year 4	Residential Operation Only	Construction Year 1	Construction Year 2	Construction Year 3	Residential and Commercial Operation Only
0< R<100	1.000	8.32	8.87	9.42	9.98	2.22	8.64	9.10	9.56	6.95
100≤R<250	0.250	2.08	2.22	2.36	2.49	0.55	2.16	2.28	2.39	1.74
250≤R<500	0.040	0.333	0.355	0.377	0.399	0.089	0.346	0.364	0.383	0.278
500≤R<1000	0.011	0.091	0.098	0.104	0.110	0.024	0.095	0.100	0.105	0.076
1000≤R<1500	0.003	0.025	0.027	0.028	0.030	0.007	0.026	0.027	0.029	0.021
1500≤R<2000	0.002	0.017	0.018	0.019	0.020	0.004	0.017	0.018	0.019	0.014
2000<R	0.001	0.008	0.009	0.009	0.010	0.002	0.009	0.009	0.010	0.007

Appendix C

Biological Evaluation

LIVE OAK
ASSOCIATES, INC.

BIOLOGICAL EVALUATION
COPPER RIDGE TENTATIVE SUBDIVISION MAP
KINGS COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.
Austin Pearson, Vice President
Natalie E. Neff, Staff Ecologist

Prepared for:

N&M Capital
1878 N. Mooney Blvd., Suite J
Tulare, CA 93274

November 27, 2024 2921-01

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) investigated the biological resources of an approximately 84-acre parcel in the outskirts of Hanford, California that is proposed for a residential subdivision, and evaluated potential project-related impacts to such resources pursuant to the California Environmental Quality Act (CEQA). This site is located immediately east of city limits northeast of the intersection of Grangeville Boulevard and 9 ¼ Avenue.

The project site was surveyed on November 4, 2024 for its biotic habitats, the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law. At the time, the site consisted of a walnut orchard, disked corn field, and associated agricultural roads and infrastructure. The site supported a variety of weedy grasses and forbs typical of a disturbed agricultural environment. The project site did not contain wildlife movement corridors, sensitive natural communities, designated critical habitat, or state or federally protected waters or wetlands.

Three special status birds known from the vicinity, the tricolored blackbird, Swainson's hawk, and loggerhead shrike, have some potential to nest on site or close enough to the site that they could experience significant project related impacts. Project related impacts are also considered potentially significant for other nesting birds and raptors. Impacts to the tricolored blackbird, Swainson's hawk, loggerhead shrike, and other nesting birds and raptors will be reduced to a less than significant level by either constructing the project outside of the nesting season or, if construction must occur during the nesting season, conducting preconstruction surveys and avoiding active nests.

The project will either have no impact or a less than significant impact, as defined by CEQA, on the following biotic resources: all 10 special plant species known to occur in the region; nine special status animal species that would not likely use the site (i.e., the project site is outside their typical range or habitats of the site are not suitable for them); one special status animal species that may occasionally use habitats of the project site for foraging; jurisdictional waters; wildlife movement corridors; and sensitive natural communities and designated critical habitat. The project appears to be consistent with City of Hanford General Plan policies related to biological resources and is presumably not subject to any Habitat Conservation Plans or Natural Community Conservation Plans.

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1.0 INTRODUCTION

Live Oak Associates, Inc. (LOA) conducted an investigation of the biotic resources of an approximately 84-acre parcel ("project site" or "site") in the outskirts of Hanford, California that is proposed for a residential subdivision. This report describes the biotic habitats of the project site, evaluates the suitability of each habitat for special status plant and animal species, identifies potentially significant impacts to sensitive or protected biological resources from the project and proposes measures that, if implemented, would mitigate those impacts to a less than significant level as defined by the California Environmental Quality Act (CEQA).

1.1 PROJECT LOCATION

The project site is located at the intersection of Grangeville Boulevard and 9 ¼ Avenue, approximately 1.25 miles north of California State Route 198 and approximately 0.4 miles southwest of California State Route 43, immediately outside of the eastern limits of the City of Hanford in Kings County, California. (Figure 1). The site can be found on the *Remnoy* U.S. Geological Survey (USGS) 7.5-minute quadrangle in Section 19, Township 18 South, Range 22 East; Mount Diablo Base and Meridian (Figure 2).

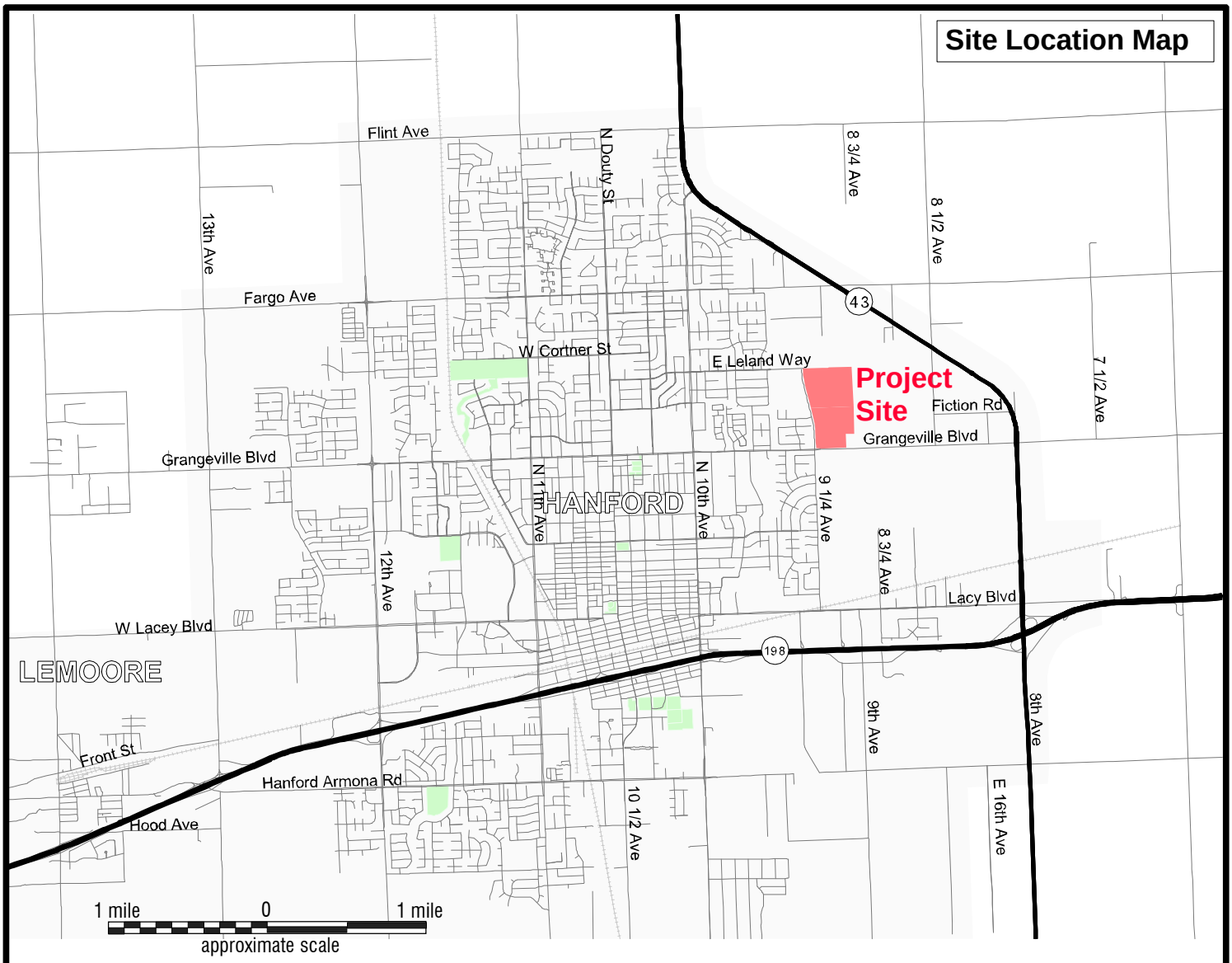
1.2 PROJECT DESCRIPTION

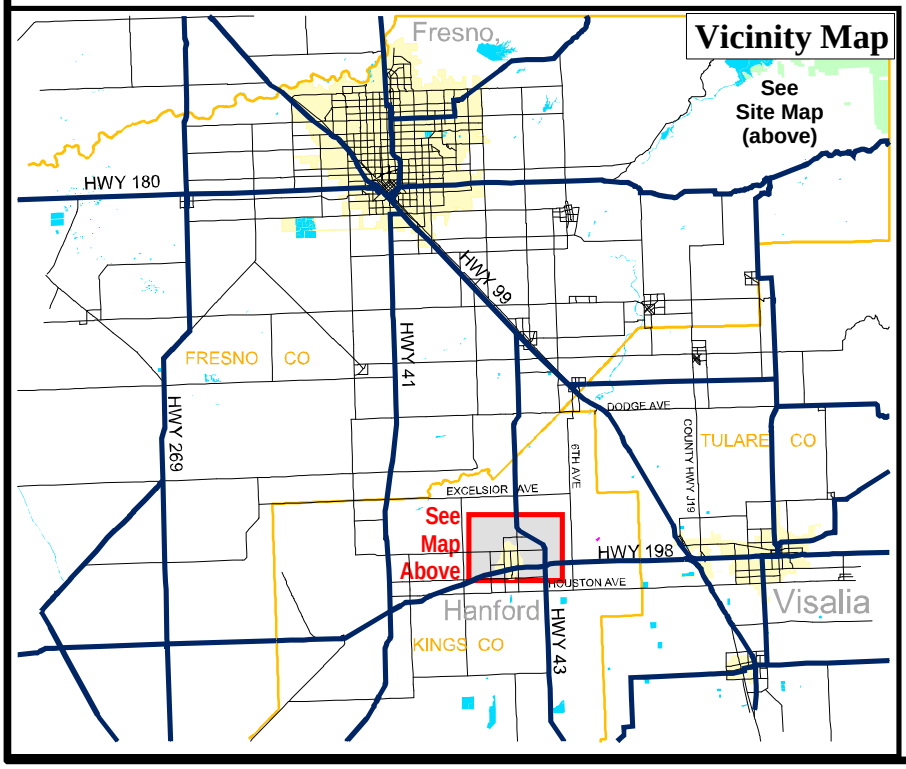
The project is the subdivision of the project site into 556 residential lots, a 4.33-acre commercial area, and several outlots to be dedicated to the City of Hanford, followed by buildout of the subdivision in five phases. The site will be annexed into the City of Hanford and will utilize Hanford's city services such as water and sewer (Figure 3).

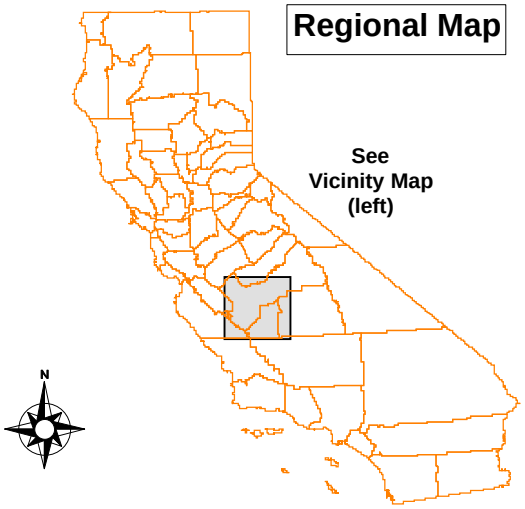
1.3 REPORT OBJECTIVES

This report summarizes a biological study conducted by LOA to facilitate environmental review pursuant to CEQA. As such, the report's objectives are to:

- Characterize the project site's existing biological resources, including biotic habitats, flora and fauna, soils, and aquatic resources
- Evaluate the project site's potential to support sensitive resources such as special status species, sensitive natural communities, and jurisdictional waters and wetlands







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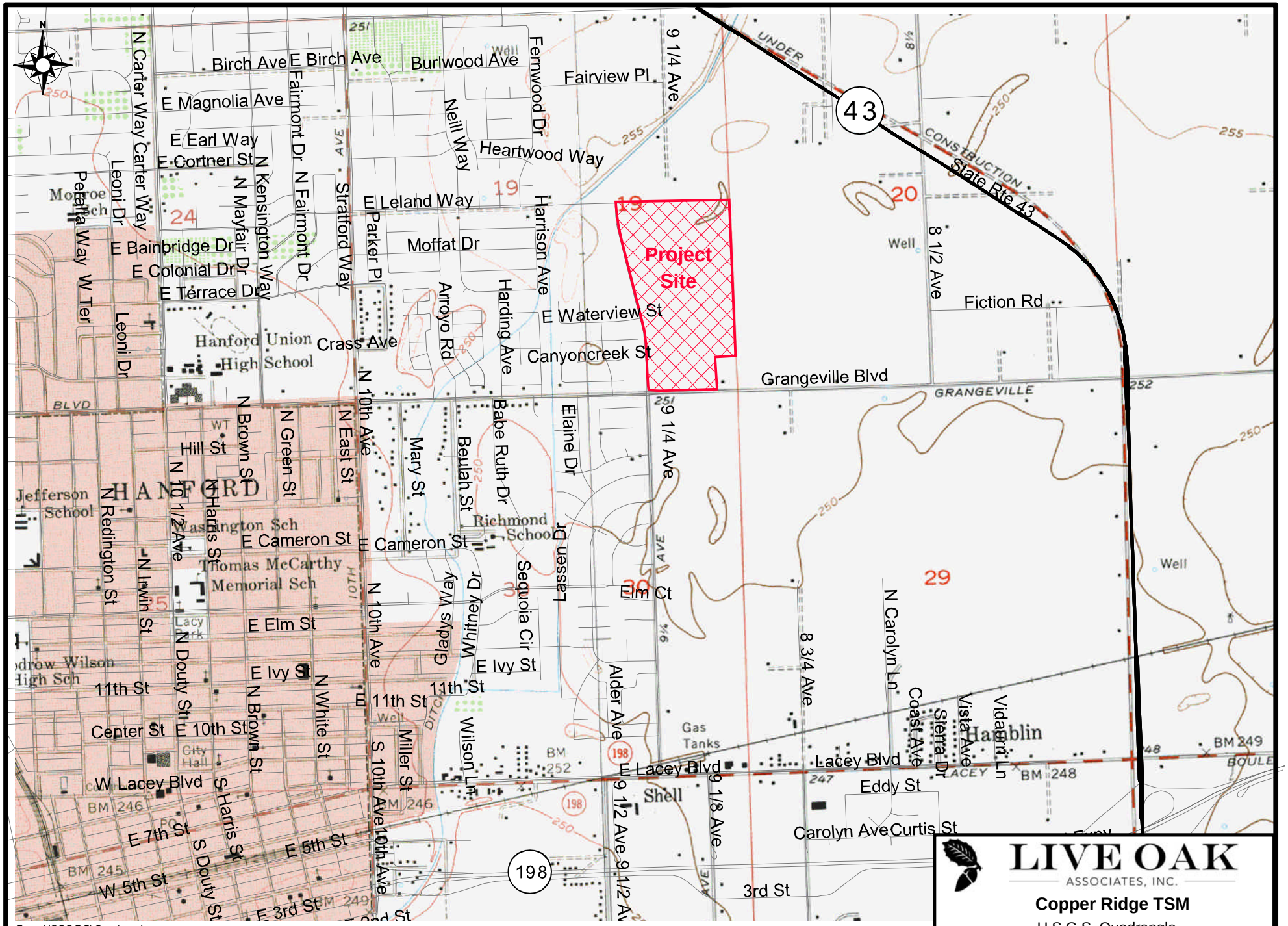
Copper Ridge TSM

Site / Vicinity Map

Date	Project #	Figure #
11/11/2024	2921-01	1



From USGS 7.5' Quadrangles
Remnoy 1954
Hanford 1954

1 mile 0 1/2 mile 1 mile
approximate scale

LIVE OAK ASSOCIATES, INC.

Copper Ridge TSM

U.S.G.S. Quadrangle

Date	Project #	Figure #
11/11/2024	**2921-01**	**2**

Site Plan Courtesy of
AWE Engineering

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Copper Ridge TSM

Site Plan

Date	Project #	Figure #
11/11/2024	**2921-01**	**3**

- Summarize all state and federal natural resource protection laws that may be relevant to project implementation
- Identify and discuss potential project-related impacts to biological resources within the context of CEQA and other state and federal laws
- Identify avoidance and mitigation measures that would reduce the magnitude of project-related impacts in a manner consistent with CEQA and species-specific guidelines

1.4 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the project site (discussed in Section 2.0). Sources of information used in the preparation of this analysis include: (1) the *California Natural Diversity Data Base* (CDFW 2024); (2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024); (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley; and (4) other available planning documents and biological studies from the general project vicinity. A field survey of the project site was conducted on November 4, 2024 by LOA biologist Natalie Neff. The survey entailed conducting a meandering walk through the project site while identifying the principal land uses of the project site and the constituent plants and animals of each land use. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the development plans for the project site.

2.0 EXISTING CONDITIONS

2.1 REGIONAL SETTING

The project site is located in the eastern Tulare Basin, which lies in the southern portion of the San Joaquin Valley. The San Joaquin Valley is a large, nearly flat alluvial plain bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coast ranges to the west, and the Sacramento-San Joaquin Delta to the north.

The San Joaquin Valley experiences a Mediterranean climate with warm, dry summers followed by cool, moist winters. Summer temperatures commonly exceed 100 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit with daytime highs often below 60 degrees Fahrenheit. Annual precipitation in the project vicinity varies considerably from year to year, but averages approximately 8 inches, almost all of which falls between the months of October and March in the form of rain (U.S. Climate Data 2024).

The project vicinity is characterized by a mix of urban and agricultural uses. Areas immediately surrounding the project site consist of agricultural fields and orchards to the north, east, and south and a residential area, community park and elementary school to the west. A sporadically inundated agricultural basin lies approximately 430 ft northwest of the project site and a small, ponded area enclosed by a chainlink fence sits approximately 350 ft west of the project site in a community park. The latter was constructed in conjunction with the adjoining neighborhood based on aerial imagery, and is presumably used to detain stormwater and other runoff. At the time of the survey, the ponded area supported emergent wetland and riparian vegetation.

The Kings River is the principal natural drainage in the region and runs east to west, beginning in the Sierra Nevada mountain range. The Kings River passes approximately 6.30 miles northwest of the project site at its closest point. An earthen ditch named the East Branch Peoples Ditch lies approximately 400 feet northwest of the project site at its closest point and is fed from water diverted from the Kings River to Peoples Levee.

2.2 PROJECT SITE

At the time of LOA's survey, the project site consisted of a walnut (*Juglans regia*) orchard and disked corn (*Zea mays*) field with associated agricultural infrastructure including dirt roads and irrigation equipment. Analysis of aerial imagery indicates that the site has been used for agricultural purposes since at least 1957 (Historic Aerials 2024).

The site is relatively flat with an elevation of approximately 248 feet National Geodetic Vertical Datum (NGVD) (see Figure 2). Soils of the site comprise Kimberlina fine sandy loam, sandy substream and Kimberlina fine sandy loam, saline-alkali. Neither soil is considered hydric, meaning they do not have the propensity to pond water and support hydrophytic (water-loving) vegetation. The soils of the project site have been substantially altered due to decades of agricultural use of the site and, as a result, no longer maintain their native soil characteristics and would have no particular significance to biological resources of the site.

2.3 BIOTIC HABITATS

The project site contained two biotic habitats characterized as orchard and agricultural field. An aerial view of the site is presented in Figure 4. A list of vascular plants identified on the site is presented in Appendix A. A list of terrestrial vertebrates using or potentially using the project site is presented in Appendix B. Representative photos of the site are presented in Appendix C.

2.3.1 Orchard

At the time of LOA's field survey, the northern half of the site consisted of a walnut orchard bordered by agricultural roads. Vegetation within the walnut orchard consisted of common forbs and grasses such as chickweed (*Stellaria media*), lesser swinecress (*Lepidium didymum*), bearded sprangletop (*Leptochloa fusca*), and jungle rice (*Echinochloa colona*).

The site's orchard habitat may be used by a number of native wildlife species that have adapted to make use of agricultural lands. A variety of birds could nest in the orchard including mourning doves (*Zenaida macroura*), Brewer's blackbirds (*Euphagus cyanocephalus*), and American robins (*Turdus migratorius*), among others. Ground nesting birds like killdeer (*Charadrius vociferus*) are highly disturbance tolerant and could nest in the dirt roads that surround the orchard.

LIVE OAK ASSOCIATES, INC.

Copper Ridge TSM

Land Cover

Date	Project #	Figure #
11/11/2024	**2921-01**	**4**

Though the orchard does not provide suitable nesting habitat for large raptors, it does provide some foraging habitat for hawks such as Cooper's hawk (*Accipiter cooperii*), which was seen foraging in the orchard during LOA's survey. Other avian species likely to forage within the orchard include yellow-rumped warbler (*Setophaga coronata*), American pipit (*Anthus spinoletta*), and American crow (*Corvus brachyrhynchos*), among others.

Amphibians such as the Pacific chorus frog (*Pseudacris regilla*) and western toad (*Anaxyrus boreas*) could breed in nearby aquatic habitats and subsequently disperse through the orchard. At the time of the survey, Pacific chorus frogs were heard in the off-site ponding basin located in the community park. Amphibian numbers in the orchard are expected to be low due to the asphalt road that separates the basin from the project site. Reptiles like valley gartersnake (*Thamnophis sirtalis fitchi*), gophersnake (*Pituophis melanoleucus*), common kingsnake (*Lampropeltis getulus*), and western fence lizard (*Sceloporus occidentalis*) may forage in the orchard as well.

Small mammal use of the orchard may include Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), Audubon's cottontails (*Sylvilagus auduboni*), and California ground squirrel (*Otospermophilis beecheyi*). At the time of LOA's survey, burrowing rodent activity was primarily restricted to the agricultural roads within the boundary edges of the project site, though a few California ground squirrel burrows were observed in the orchard.

Common mammalian predators such as coyotes (*Canis latrans*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) may forage through the orchard. Raccoon and Virginia opossum prints were observed within the soils of the orchard at the time of the survey. Various bat species are known to forage in walnut orchards, though roosting habitat is absent. While bats often utilize trees for roosting, the walnut trees in the orchard were not mature enough to support roosting habitat in the form of cavities or crevices nor was the canopy dense enough to provide roosting habitat for the foliage roosting hoary bat (*Lasiurus cinereus*).

2.3.2 Agricultural Field

The southern half of the project site consisted of a disked agricultural field which had previously been cultivated with corn. Vegetation within the disked corn field included weedy species such

as bearded sprangletop, Bermuda grass (*Cynodon dactylon*), rough cocklebur (*Xanthium strumarium*), and red-root amaranth (*Amaranthus retroflexus*)

The agricultural field provides relatively low wildlife value due to the high amount of disturbance it receives and general lack of vegetation; however, some common species are expected to utilize this portion of the site. Birds such as American pipits, American crows, and mourning doves could forage in the field and the disturbance tolerant killdeer could nest in the field or along the adjoining dirt roads. Open country raptors such as red-tailed hawks (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) may also forage over the field.

As previously stated, the site's proximity to the ponding basin suggests that amphibians such as Pacific tree frogs or western toads could utilize the site as upland habitat, however their numbers are expected to low, similar to those in the orchard, due to the asphalt road separating the ponding basin from the disked field. Common kingsnake, gophersnake, and side-blotched lizard (*Uta stansburiana*) may forage in the agricultural field from time to time.

Small mammal use of the agricultural field may include Botta's pocket gopher, Audubon's cottontail, deer mouse, and California ground squirrel. At the time of the survey, burrowing rodent activity was restricted to the dirt roads bordering the edges of the field and was not detected within the agricultural field.

Similar to the orchard, mammalian predators such as coyotes, raccoons, striped skunks, and Virginia opossum may forage in the agricultural field. Bats are likely to forage over the agricultural field as well, though roosting habitat is absent.

2.4 SPECIAL STATUS PLANTS AND ANIMALS

Many species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.0, state and federal laws have provided California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native plants considered rare, threatened, or endangered (CNPS 2024). Collectively, these plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CNDDB) was queried for special status plant and animal occurrences in the nine USGS 7.5-minute quadrangles containing and surrounding the project site (*Laton, Burris Park, Traver, Hanford, Remnoy, Goshen, Guernsey, Waukena,* and *Paige*). A number of special status plants and animals were returned in the query and are summarized below in Table 1. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *California Natural Diversity Data Base* (CDFW 2024), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), the *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024), *Calflora.org,* and *eBird.org*.

TABLE 1. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

PLANTS

CNPS-listed Species

Species	Status	Habitat	*Occurrence within the Project Site
Heartscale (*Atriplex cordulata var. cordulata*)	CRPR 1B.2	Occurs on saline or alkaline soils in chenopod scrub, meadows, seeps, and grasslands; blooms April-October; elevations below 1,230 ft.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Earlimart Orache (*Atriplex cordulata var. erecticaulis*)	CRPR 1B.2	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Brittlescale (*Atriplex depressa*)	CRPR 1B.2	Occurs in chenopod scrub, valley and foothill grassland, meadows and seeps, playas, and vernal pools. It is rarely found in riparian or marsh habitats. Blooms April-October; elevations below 1,050 ft.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Lesser Saltscale (*Atriplex minuscula*)	CRPR 1B.1	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Subtle Orache (*Atriplex subtilis*)	CRPR 1B.2	Occurs in alkaline vernal pools; blooms July-Oct.; elevations below 400 ft.	**Absent.** Vernal pool habitat is absent from the project site.
Recurved Larkspur (*Delphinium recurvatum*)	CRPR 1B.2	Occurs in alkaline soils of cismontane woodland and valley and foothill grasslands in elevations 100 – 2,000 feet. Blooms March-June.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Alkali-Sink Goldfields (*Lasthenia chrysantha*)	CRPR 1B.1	Occurs in valley grassland, alkali sink, wetland riparian areas less than 328 ft. in elevation in the southern Sacramento Valley and San Joaquin Valley. Blooms February – June.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Mud Nama (*Nama stenocarpa*)	CRPR 2B.2	Occurs in intermittently wet areas such as lake shores and river banks. Occurs sparingly in the Central Valley and more frequently in Southern California from sea level to below 1,640 feet. Blooms January-July.	**Absent.** Intermittently wet areas needed for the proliferation of this species are absent on the project site.
California Alkali Grass (*Puccinellia simplex*)	CRPR 1B.2	Occurs in alkali sinks and flats within grassland and chenopod scrub habitats of the Central Valley, San Francisco Bay area and western Mojave Desert; elevations below 3,000 feet. Blooms March-May.	**Absent.** Decades of agricultural disturbance would have eliminated any habitat that may have once been present on site or in the immediate vicinity.
Sanford's Arrowhead (*Sagittaria sanfordii*)	CRPR 1B.2	Occurs in freshwater emergent marsh habitat in drainage ditches and canals of California's Central Valley. Blooms May to October.	**Absent.** Aquatic habitat needed to support this species is absent from the project site.

TABLE 1. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence within the Project Site
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent**. Suitable habitat in the form of vernal pools is absent from the site and immediately surrounding lands.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Vernal pools of clear to turbid waters of the Central Valley measuring 54 sq.ft. to larger pools (largest known to be 89-acre Olcott Lake).	**Absent**. Suitable habitat in the form of vernal pools is absent from the site and immediately surrounding lands.
California Tiger Salamander-Central California DPS (*Ambystoma californiense*)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. Although most CTS aestivate within 0.4 mile of their breeding pond, outliers may aestivate up to 1.3 miles away (Orloff 2011).	**Absent**. The project site is situated in a matrix of urban and intensive agricultural lands within which this species would not have been able to persist. The nearest block of contiguous grassland is located more than 6 miles east of the site along Cross Creek. The closest CNDDB occurrence is over 8 miles northeast of the project site; it refers to an observation made sometime prior to 1925, from a population that is now considered extirpated (CDFW 2024).
Western Spadefoot (*Spea hammondii*)	FPT, CSC	Occurs in grasslands of San Joaquin Valley, where it breeds in vernal pools or other seasonal wetlands and aestivates in underground refugia such as rodent burrows. Baumberger et al. (2019) recorded a maximum distance of around 890 feet between breeding and aestivation sites.	**Absent.** The project site is situated in a matrix of urban and intensive agricultural lands within which this species would not have been able to persist. Although the basins to the west and northwest of the site may theoretically be suitable for spadefoot reproduction, they were constructed between 2003 and 2010, after the surrounding landscape was converted to unsuitable uses. The nearest block of contiguous grassland is located more than 6 miles east of the site along Cross Creek; that is also where the nearest CNDDB occurrences of this species are (CDFW 2024).

TABLE 1. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence within the Project Site
Northwestern Pond Turtle (*Actinemys marmorata*)	FPT, CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires partially submerged rocks or logs for basking sites. Nesting takes place in open areas, on a variety of soil types, and up to ¼ mile away from water. Overwintering and summertime aestivation includes use of upland habitat, generally with leaf litter or other loose substrate for burying themselves.	**Unlikely.** The project site consists entirely of intensive agricultural lands that lack aquatic features and offer little to no upland habitat value for this species; the latter is limited to marginal nesting opportunity in the site's disked field. Two aquatic features within ¼ mile of the site are potentially suitable for pond turtles: the ponding basin to the west and the East Branch Peoples Ditch to the northwest. Even if pond turtles occupy these features, however, they are unlikely to travel to the site for nesting. The ponding basin is completely enclosed by a chainlink fence, which would prevent this species from migrating to the project site. The East Branch Peoples Ditch is located more than 0.3 mile from the site's disked field, the one area of the site that could theoretically support nesting by this species. Furthermore, there are no nearby iNaturalist records (iNaturalist 2024) and the closest CNDDB occurrence is approximately 9.5 miles south of the project site (CDFW 2024). For these reasons, northwestern pond turtles are unlikely to be found on the project site.
Blunt-Nosed Leopard Lizard (*Gambelia sila*)	FE, CE, FP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to southern Merced County.	**Absent.** Agricultural and urban development has eliminated any potential habitat from the project site and surrounding area. There are no CNDDB occurrences within the vicinity of the project site (CDFW 2024).
Tricolored Blackbird (*Agelaius tricolor*)	CT, CSC	Breeds colonially near fresh water in dense bulrush, cattails, thickets of willows or shrubs, and increasingly in wheat or triticale fields. Forages in grassland and cropland areas.	**Possible.** Tricolored blackbirds are not commonly documented in the project vicinity. There is one eBird occurrence within 5 miles of the site, documented approximately 3.5 miles to the northeast in 2002. The closest CNDDB occurrence is approximately 10 miles south of the site, recorded in 2000. Nevertheless, this species has some potential to occur on site. The site's agricultural field is suitable for foraging, and may provide nesting habitat for this species if it is rotated to wheat or another suitable grain crop.

TABLE 1. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence within the Project Site
Burrowing Owl (*Athene cunicularia*)	CC, CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Unlikely.** The project site does not contain suitable habitat for burrowing owls and is situated within a matrix of intensive agricultural and urban uses generally incompatible with this species' ecology. There are only two eBird sightings of burrowing owl within 10 miles of the project site, and the closest known CNDDB occurrence is located approximately 6.5 miles northeast of the project site in the grasslands along Cross Creek, documented in 2017 (CDFW 2024).
Swainson's Hawk *(Buteo swainsoni*)	CT	This breeding migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** The project site contains foraging habitat in the form of a disked field, but does not contain nesting habitat for the Swainson's hawk. Swainson's hawks do have the potential to nest in the mature trees within the immediate project vicinity. They are well-documented in the area; there are 20 CNDDB nesting occurrences within 10 miles of the site, with the closest located just 1.5 mile to the southeast (CDFW 2024), and over 50 eBird sightings within a 10-mile radius as well (eBird 2024).
Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Inhabits valley saltbrush scrub, valley sink scrub, and grassland habitats located from the Valley floor to 300 ft. in elevation.	**Absent.** Suitable habitat is absent from the project site, and the site is situated in a matrix of intensive agricultural and urban uses within which this species would not have been able to persist. There are no CNDDB occurrences in the vicinity (CDFW 2024).
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Desert alkali scrub, annual grasslands of California's San Joaquin Valley and Tulare Basin, extending west into San Luis Obispo County. This species may forage in adjacent agricultural fields.	**Unlikely.** This species was historically known from the project vicinity. There are 13 CNDDB occurrences within 10 miles of the project site, including one occurrence just 0.75 mile from project boundaries; however, all but two of these are from the 1970s, with the remaining records from 2000 and 2006. The project site is situated in a matrix of urban and intensive agricultural land uses generally incompatible with kit fox ecology, and the site itself consists of a highly-managed orchard and agricultural field, neither of which are likely to attract individuals of this species. These factors, combined with the lack of modern sightings, suggest a very low probably of kit fox occurrence on site.

TABLE 1. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS (cont'd)

State Species of Special Concern

Species	Status	Habitat	*Occurrence within the Project Site
Loggerhead Shrike (*Lanius ludovicianus*)	CSC	Found in a variety of arid habitats Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Possible.** This species is known from the vicinity. There are five eBird sightings within 5 miles of the project site; the closest of these was recorded just ½ mile north of project boundaries in 2021. Loggerhead shrikes could forage over the site's agricultural field and the walnut orchard could potentially be used for nesting by this species.
Western Mastiff Bat (*Eumops perotis californicus*)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Is known to forage over long distances, flying up to 15 miles a night. Roosts in cliff faces, high buildings, and tunnels.	**Possible.** The project site does not contain roosting habitat for this species. Though generally uncommon within the Central Valley, this species may occasionally forage over the site.

***OCCURRENCE DESIGNATIONS AND STATAUS CODES**

Present: Species observed on the site at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the site, but it could occur there from time to time.
Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
Absent: Species not observed on the Site and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPT	Federally Proposed Threatened	CSC	California Species of Special Concern
FC	Federal Candidate	CFP	California Fully Protected
		CC	California Candidate for Listing

CRPR CODES

1A	Plants Presumed Extinct in California	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

2.5 JURISDICTIONAL WATERS

Jurisdictional waters are those rivers, creeks, drainages, lakes, ponds, reservoirs, and wetlands that are subject to the authority of the USACE, CDFW, and/or the RWQCB. In general, the USACE regulates navigable waters, tributaries to navigable waters, and wetlands with a continuous surface connection to these waters, where wetlands are defined by the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. All waters under USACE

jurisdiction are also regulated by the RWQCB as waters of the State. Additionally, the RWQCB asserts jurisdiction over certain isolated features disclaimed by the USACE. The CDFW has jurisdiction over waters that have a defined bed and bank. The regulation of jurisdictional waters is discussed in more detail in Section 3.2.8.

Aquatic features, including any potentially jurisdictional waters or wetlands, are absent from the project site.

2.6 DESIGNATED CRITICAL HABITAT

As will be discussed further in Section 3.0, the USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and immediately surrounding lands.

2.7 CALIFORNIA SENSITIVE NATURAL COMMUNITIES

California contains a wide range of natural communities, or unique assemblages of plants and animals. These communities have largely been classified and mapped by CDFW as part of their Vegetation Classification and Mapping Program (VegCAMP). Natural communities are assigned state and global ranks according to their rarity and the magnitude and trend of the threats they face. Any natural community with a state rank of 3 or lower (on a 1 to 5 scale) is considered "sensitive" and must be considered in CEQA review.

No habitats designated as a Sensitive Natural Community by CDFW or any other sensitive habitats are present on the site or surrounding lands.

2.8 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines.

The project site does not contain or adjoin any geographic features that could function as a wildlife movement corridor.

3.0 RELEVANT GOALS, POLICIES, AND LAWS

3.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

In California, any project carried out or approved by a public agency that will result in a direct or reasonably foreseeable indirect physical change in the environment must comply with CEQA. The purpose of CEQA is to ensure that a project's potential impacts on the environment are evaluated and methods for avoiding or reducing these impacts are considered before the project is allowed to move forward. A secondary aim of CEQA is to provide justification to the public for the approval of any projects involving significant impacts on the environment.

According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest." Although the lead agency may set its own CEQA significance thresholds, project impacts to biological resources are generally considered to be significant if they would meet any of the following criteria established in Appendix G of the CEQA Guidelines:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) requires the lead agency to make "mandatory findings of significance" if there is substantial evidence that a project may:

- Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare or threatened species.
- Achieve short-term environmental goals to the detriment of long-term environmental goals.
- Produce environmental effects that are individually limited but cumulatively considerable, meaning that the incremental effects of the project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects.

3.2 OTHER RELEVANT LAWS AND POLICIES

3.2.1 General Plan Policies of the City of Hanford

In compliance with CEQA, the lead agency must consider conformance with applicable goals and policies of the City of Hanford General Plan. The City of Hanford General Plan was released in March 2014 and is valid through 2034. Implementation of goals in the general plan is accomplished via a set of policies specific to each goal.

Relevant biological resource goals of the City of Hanford General Plan can be found in Chapter 5: Open Space, Conservation, and Recreation; and are as follows:

- Preserve and enhance natural open space areas;
- Where feasible, establish permanent mechanisms to protect wetlands and riparian corridors;
- Identify and protect vernal pools;
- Avoid potential negative impacts of increased human activity on sensitive habitat areas when establishing new recreational facilities/programs;
- Ensure potential impacts to biological resources and sensitive habitat are carefully evaluated when considering development projects;
- Manage or eliminate nonnative invasive species from City-owned property and open space;

- Promote the preservation of existing mature trees and encourage the planting of appropriate shade trees in new developments;
- Encourage the planting of native trees and drought-tolerant vegetation;
- Establish programs in connection with environmental review process to protect endangered wildlife and their habitats;
- Work with state, federal, and local agencies on the preservation of sensitive wildlife species in the City

3.2.2 Threatened and Endangered Species

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). The USFWS commonly interprets "take" to include the loss of habitat utilized by a listed species.

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.2.3 California Fully Protected Species

The classification of certain animal species as "fully protected" was the State of California's initial effort in the 1960s, prior to the passage of the California Endangered Species Act (CESA), to

identify and provide additional protection to those species that were rare or faced possible extinction. Following CESA enactment in 1970, many fully protected species were also listed as California threatened or endangered. The list of fully protected species are identified, and their protections stipulated, in California Fish and Game Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and fish (5515). Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except in conjunction with necessary scientific research and protection of livestock.

3.2.4 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

3.2.5 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, 1992), which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.2.6 Nesting Birds

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.2.7 Habitat Conservation Plans and Natural Community Conservation Plans

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

3.2.8 Wetlands and Other Jurisdictional Waters

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), issued in January 2023 and amended in August 2023. Generally speaking, waters of the U.S. include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide
- The territorial seas
- Interstate waters
- Impoundments of waters otherwise defined as waters of the United States under the definition
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems
- Prior converted cropland
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water
- Certain artificial features, e.g. irrigation basins, swimming pools, borrow pits, and artificially irrigated areas
- Swales and erosional features characterized by low volume, infrequent, or short duration flow

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders.

Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The SWRCB and RWQCBs also administer the federal National Pollution Discharge Elimination System (NPDES) program, which is concerned with the discharge of stormwater and other pollutants into water bodies. Projects that disturb one or more acres of soil must obtain coverage under the SWRCB's current NPDES Construction Stormwater General Permit. A prerequisite for permit coverage is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Other types of pollutant discharges into waters of the U.S., such as wastewater, may require coverage under a different NPDES general permit, and in some cases an individual permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

4.0 IMPACTS AND MITIGATIONS

The project considered in this evaluation of impacts to biological resources is the conversion of 84 acres of agricultural lands to a residential subdivision. This analysis assumes that all areas of the site will experience permanent impacts from proposed development.

4.1 POTENTIALLY SIGNIFICANT PROJECT IMPACTS

4.1.1 Potential Project Impacts to Nesting Raptors and Migratory Birds Including Tricolored Blackbird, Loggerhead Shrike, and Swainson's Hawk

Potential Impacts. The site's agricultural field could support nesting by ground- or vegetation-nesting birds such as the mourning dove, western meadowlark (*Sturnella neglecta*), and (when planted to a suitable grain such as wheat or triticale), the red-winged blackbird (*Agelaius phoenecius*) and possibly even the California Threatened tricolored blackbird (*Agelaius tricolor*). The site's orchard trees have the potential to be used for nesting by a variety of migratory birds, possibly including the loggerhead shrike (*Lanius ludovicianus*), a California Species of Concern. Larger trees in the immediate project vicinity have the potential to support nesting raptors, possibly including the Swainson's hawk (*Buteo swainsoni*), a California Threatened species. Nearly all birds are protected by state and federal law. If project construction takes place during the nesting season, birds nesting on site could be injured or killed by construction activities, while birds nesting near the site could be disturbed such that they would abandon their nests. Construction-related mortality of nesting birds and disturbance leading to nest abandonment would violate state and federal laws and constitute a significant impact of the project.

Tricolored blackbirds, Swainson's hawks, and loggerhead shrikes are not expected to be adversely affected by project-related loss of habitat. The site does not offer unique habitat for any of these species, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality habitats are abundant in the project vicinity and elsewhere in the region. Project-related loss of habitat for these species is considered a less than significant impact under CEQA.

Mitigation. The following measures will be implemented for the protection of nesting birds and raptors including the tricolored blackbird, Swainson's hawk, and loggerhead shrike.

Mitigation Measure 4.1.1a (Construction Timing). If feasible, future construction activities will take place entirely outside of the avian nesting season, defined as February 1 to August 31.

***Mitigation Measure 4.1.1b (Preconstruction Surveys*).** If construction must occur between February 1 and August 31, a qualified biologist will conduct surveys for active bird nests within 7 days prior to the start of work during this period. The survey area will encompass the site and accessible surrounding lands within ¼ mile for nesting Swainson's hawks, 500 feet for other nesting raptors, 300 feet for the tricolored blackbird, and 250 feet for other nesting birds.

***Mitigation Measure 4.1.1c (Avoidance of Active Nests*).** Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of the above measures will reduce potential project impacts to nesting birds and raptors, including the tricolored blackbird, loggerhead shrike, and Swainson's hawk, to a less than significant level under CEQA and facilitate compliance with state and federal laws protecting these species.

4.2 LESS THAN SIGNIFICANT PROJECT IMPACTS

4.2.1 Potential Project Impacts to Special Status Plants

Potential Impacts. Ten (10) special status plant species have been documented in the project vicinity (see Table 1). All ten species are considered absent from the project site due to an absence of suitable habitat and/or soils, the site's being situated outside of the species' distribution, or a combination thereof. Therefore, impacts to special status plants are considered less than significant under CEQA.

Mitigation. Mitigation measures are not warranted.

4.2.2 Potential Project Impacts to Special Status Animal Species Absent from or Unlikely to Occur Within the Project Site

Potential Impacts. Of the thirteen (13) special status animal species that potentially occur in the general vicinity of the site, nine are considered absent from or unlikely to occur within the project site due to the absence of suitable habitat and/or the project site being situated outside of the

species' known distribution (see Table 1). These comprise the vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondii*), northwestern pond turtle (*Actinemys marmorata*), blunt-nosed leopard lizard (*Gambelia sila*), burrowing owl (*Athene cunicularia*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The project is expected to have an insignificant effect or no effect on these species through construction mortality/disturbance or loss of habitat because there is little or no likelihood that they are present.

Mitigation. Mitigation is not warranted.

4.2.3 Project Impacts to Special Status Animal Species that Would Use the Site for Non-Sensitive Activities Only

Potential Impacts. One special status animal species, the western mastiff bat (*Eumops perotis* ssp. *californicus*), has the potential to pass through or forage on the site from time to time but would not roost on or near enough to the site that they could be vulnerable to construction-related disturbance or reproductive failure (see Table 1). Individuals of this species are unlikely to be injured or killed by construction activities because they are highly mobile while foraging and would be expected to simply avoid active work areas.

The project would not adversely affect this species through loss of foraging habitat. The site does not offer unique foraging habitat for the western mastiff bat, nor is it likely to represent an important part of any individual foraging range, given its disturbed nature and urban setting. Similar and higher quality foraging habitats are abundant in the project vicinity and elsewhere in the region.

Mitigation. Mitigation is not warranted.

4.2.4 Potential Project Impacts to Jurisdictional Waters

Potential Impacts. As discussed, the project site does not contain or adjoin any aquatic features. No impacts to jurisdictional waters are anticipated.

Mitigation. Mitigation is not warranted.

4.2.5 Potential Project Impacts to Wildlife Movement Corridors

Potential Impacts. The project site does not contain or adjoin any geographic features that could function as a wildlife movement corridor. Therefore, the project will have no impact on wildlife movement corridors.

Mitigation. Mitigation is not warranted.

4.2.6 Project Impacts to Sensitive Natural Communities and Designated Critical Habitat

Potential Impacts. Sensitive Natural Communities and Designated Critical Habitat are absent from the project site and surrounding lands. Project development would have no impact on Sensitive Natural Communities or Designated Critical Habitat.

Mitigation. No mitigation is warranted.

4.2.7 Consistency with Local Policies and Ordinances

Potential Impacts. The project appears consistent with the City of Hanford General Plan policies related to biological resources.

Mitigation. Mitigation measures are not warranted.

4.2.8 Consistency with Habitat Conservation Plans and Natural Community Conservation Plans

Potential Impacts. There are no known HCPs or NCCPs that would apply to the project.

Mitigation. Mitigation measures are not warranted.

LITERATURE REFERENCED OR CITED

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, and T. J. Rosatti, Eds. 2012. The Jepson Manual: Vascular Plants of California, 2nd edition. University of California Press, Berkeley, CA.

Calflora. 2024. Calflora: An online database of plant identification and distribution [web application]. Calflora, Berkeley, California. Available: http://www.calflora.org.

California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database. The Resources Agency, Sacramento, CA.

_____. 2002. California Fish and Game Code. Gould Publications. Binghamton, NY.

California Native Plant Society. 2024. Inventory of Rare and Endangered Vascular Plants of California. Available: http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.

California Soil Resource Lab. 2008. Streaming, seamless interface to USDA-NCSS SSURGO and STATSGO Soil Survey Products.

ECORP Consulting Inc. April 2007. Tulare Lake Basin Hydrology and Hydrography: A Summary of the Movement of Water and Aquatic Species. Available: https://www.epa.gov/sites/default/files/2018-05/documents/tulare-fullreport.pdf

eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org.

Historic Aerials. 2024. Nationwide Environmental Title Research, LLC. Available: https://www.historicaerials.com/about-us

iNaturalist. 2024. Available: https://www.inaturalist.org/

Jepson Flora Project (eds.) 2024. Jepson eFlora, Available: https://ucjeps.berkeley.edu/eflora/

Nafis, G. 2024. California Herps - A Guide to the Amphibians and Reptiles of California. Available: http://www.californiaherps.com/

U.S. Climate Data. 2024. Climate Hanford- California. Available: https://www.usclimatedata.com/climate/hanford/california/united-states/usca0605

U.S. Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Department of the Army.

Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. Ed. 1988. California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals. Department of Fish and Game. Sacramento, CA. Available: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

APPENDIX A
VASCULAR PLANTS OF THE PROJECT SITE

The plant species listed below were observed on the project site during LOA's November 4, 2024 surveys. The wetland indicator status of each plant, derived from the USACE-administered National Wetland Plant List for the Arid West Region, has been shown following its common name if available.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland

AMARANTHACEAE – Amaranth Family		
Amaranthus blitoides	Procumbent Pigweed	FACU
Amaranthus retroflexus	Redroot Amaranth	FACU
ARECACEAE – Palm Family		
Washingtonia spp.	Fan Palm	FACW
ASTERACEAE – Sunflower Family		
Erigeron spp.	Fleabane	FACU
Lactuca serriola	Prickly Lettuce	FACU
Pseudognaphalium luteoalbum	Jersey Cudweed	FAC
Sonchus oleraceus	Common Sow Thistle	UPL
Xanthium strumarium	Rough Cocklebur	FAC
BORAGINACEAE – Borage Family		
Heliotropium curassavicum	Salt Heliotrope	FACU
BRASSICACEAE – Mustard Family		
Capsella bursa-pastoris	Shepherd's purse	FACU
Lepidium didymum	Lesser Swine-cress	UPL
CARYOPHYLLACEAE – Carnation Family		
Stellaria media	Common Chickweed	FACU
CHENOPODIACEAE—Goosefoot Family		
Salsola tragus	Russian Thistle	FACU
CYPERACEAE – Carnation Family		
Cyperus rotundus	Purple Nutsedge	FAC
JUGLANDACEAE – Walnut Family		
Juglans regia	Walnut	UPL
MALVACEAE – Mallow Family		
Malva parviflora	Cheeseweed	UPL
POACEAE – Grass Family		
Cynodon dactylon	Bermuda Grass	FAC
Echinochloa colonum	Jungle Rice	FAC
Echinochloa crus-galli	Barnyard Grass	FACW
Leptochloa fusca	Bearded Sprangletop	FACU

Taeniatherum caput-medusae	Medusahead	UPL
Triticum aestivum	Common Wheat	UPL
Zea mays	Corn	UPL
PORTULACEAE – Purslane Family		
Portulaca oleracea	Common Purslane	FAC
ZYGOPHYLLACEAE – Caltrops Family		
Tribulus terrestris	Puncturevine	UPL

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES POTENTIALLY OCCURRING ON THE PROJECT SITE

APPENDIX B
TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may be expected to routinely and predictably use or pass through the project site during some or all of the year. An asterisk denotes a species observed on or immediately adjacent to the site during surveys conducted by LOA on November 4, 2024.

CLASS: AMPHIBIA
ORDER: ANURA (Frogs and Toads)
FAMILY: BUFONIDAE (True Toads)
Western Toad (*Bufo boreas*)
FAMILY: HYLIDAE (Treefrogs and Relatives)
Pacific Tree Frog (*Pseudacris regilla*)

CLASS: REPTILIA
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Side-blotched Lizard (*Uta stansburiana*)
Western Fence Lizard (*Sceloporus occidentalis*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Pacific Gopher Snake (*Pituophis catenifer catenifer*)
Common Kingsnake (*Lampropeltis californiae*)
Valley Gartersnake (*Thamnophis sirtalis fitchi*)
FAMILY: VIPERIDAE (Vipers)
Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES
ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: CATHARTIDAE (New World Vultures)
Turkey Vulture (*Cathartes aura*)
ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)
*Cooper's Hawk (*Accipiter cooperi*)
Red-tailed Hawk (*Buteo jamaicensis*)
ORDER: CHARADRIIFORMES (Shorebirds)
FAMILY: CHARADRIIDAE (Plovers, Dotterels, and Lapwings)
*Killdeer (*Charadrius vociferus*)
ORDER: COLUMBIFORMES (Pigeons and Doves)
FAMILY: COLUMBIDAE (Pigeons and Doves)
Rock Pigeon (*Columba livia*)
*Mourning Dove (*Zenaida macroura*)
Eurasian Collared Dove (*Streptopelia decaocto*)
ORDER: STRIGIFORMES (Owls)
FAMILY: TYTONIDAE (Barn Owls)

Barn Owl (*Tyto alba*)

ORDER: PASSERIFORMES (Perching Birds)

FAMILY: TYRANNIDAE (Tyrant Flycatchers)

Black Phoebe (*Sayornis nigricans*)

Western Kingbird (*Tyrannus verticalis*)

FAMILY: CORVIDAE (Jays, Magpies, and Crows)

California Scrub Jay (*Aphelocoma coerulescens*)

*American Crow (*Corvus brachyrhynchos*)

Common Raven (*Corvus corax*)

FAMILY: HIRUNDINIDAE (Swallows)

Cliff Swallow (*Petrochelidon pyrrhonota*)

Barn Swallow (*Hirundo rustica*)

FAMILY: AEGITHALIDAE (Bushtits)

Bushtit (*Psaltriparus minimus*)

FAMILY: REGULIDAE (Kinglets)

Ruby-crowned Kinglet (*Corthylio calendula*)

FAMILY: TURDIDAE (Thrushes)

Western Bluebird (*Sialia mexicana*)

American Robin (*Turdus migratorius*)

FAMILY: MIMIDAE (Mockingbirds and Thrashers)

Northern Mockingbird (*Mimus polyglottos*)

FAMILY: MOTACILLIDAE (Wagtails, Longclaws, and Pipits)

*American Pipit (*Anthus rubescens*)

FAMILY: PARULIDAE (Wood Warblers and Relatives)

*Yellow-rumped Warbler (*Dendroica coronata*)

FAMILY: STURNIDAE (Starlings and Allies)

European Starling (*Sturnus vulgaris*)

FAMILY: EMBERIZIDAE (Sparrows)

White-crowned Sparrow (*Zonotrichia leucophrys*)

FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)

Western Meadowlark (*Sturnella neglecta*)

Red-winged Blackbird (*Agelaius phoeniceus*)

Great-tailed Grackle (*Quiscalus mexicanus*)

Brewer's Blackbird (*Euphagus cyanocephalus*)

Brown-headed Cowbird (*Molothrus ater*)

Bullock's Oriole (*Icterus bullock*)

FAMILY: FRINGILLIDAE (Finches)

House Finch (*Carpodacus mexicanus*)

Lesser Goldfinch (*Carduelis psaltria*)

FAMILY: PASSERIDAE (Old World Sparrows)

House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

*Virginia Opossum (*Didelphis virginiana*)

ORDER: CHIROPTERA (Bats)

FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)
Yuma Myotis (*Myotis yumanensis*)
California Myotis (*Myotis californicus*)
Western Pipistrelle (*Pipistrellus hesperus*)
Big Brown Bat (*Eptesicus fuscus*)
FAMILY: MOLOSSIDAE (Free-tailed Bat)
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)
FAMILY: LEPORIDAE (Rabbits and Hares)
Audubon's Cottontail (*Sylvilagus audubonii*)
ORDER: RODENTIA (Rodents)
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)
*California Ground Squirrel (*Otospermophilus beecheyi*)
FAMILY: GEOMYIDAE (Pocket Gophers)
*Botta's Pocket Gopher (*Thomomys bottae*)
FAMILY: MURIDAE (Mice, Rats and Voles)
Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)
ORDER: CARNIVORA (Carnivores)
FAMILY: CANIDAE (Foxes, Wolves, and Relatives)
Red Fox (*Vulpes vulpes*)
Coyote (*Canis latrans*)
*Domestic Dog (*Canis familiaris*)
FAMILY: PROCYONIDAE (Raccoons and Relatives)
*Raccoon (*Procyon lotor*)
FAMILY: MUSTELIDAE (Weasels and Relatives)
Striped Skunk (*Mephitis mephitis*)
FAMILY: FELIDAE (Cats)
*Feral Cat (*Felis catus*)

APPENDIX C:
SELECT PHOTOGRAPHS OF THE PROJECT SITE

Photo 1: Representative photo of walnut orchard approximately a week after being watered.

Photo 2: Representative photo of California ground squirrel burrow (bottom left) found adjacent to the orchard. North edge of orchard, facing east.

Photo 3: Middle of project site on west side, facing east. Agricultural road with the walnut orchard on left, disked corn field on right, residential area with mature trees seen in background.

Photo 4: Middle of project site on east side, facing northwest. Agricultural road with the walnut orchard on right, disked corn field on left, 9 ¼ Avenue and residential area with mature trees seen in background

Photo 5: Southern boundary of project site, facing east. Disked cornfield on left, residential area with mature trees in background, Grangeville Boulevard on right.

Photo 6: Northwest boundary of project site, facing south. Walnut orchard on left, 9 ¼ Avenue, trees and ponded area on right (surrounded by chainlink fence), residential area in background.

Appendix D

Cultural Resources Assessment

Cultural Resources Assessment for the Copper Ridge Tentative Subdivision Map Project, Kings County, California

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USGS Remnoy 7.5' topographic quadrangle;
83 total project acres; 83 acres surveyed
Keywords: Negative findings

MANAGEMENT SUMMARY

Taylored Archaeology completed a Phase I Cultural Resources Assessment for Copper Ridge Tentative Subdivision Maps Project (Project). The Project consists of an 83-acre property in unincorporated Kings County, California at the northeast corner of 9 ¼ Avenue and Grangeville Boulevard near the City of Hanford. The proposed Project includes the development of 556 single-family homes and 4.33 acres of commercial development constructed in five phases. The Project is subject to the California Environmental Quality Act (CEQA).

This Phase I Cultural Resources Assessment in compliance with CEQA requirements, entails (1) a records search from the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), (2) archival research, (3) a search of the Native American Heritage Commission's (NAHC) Sacred Lands File, a request for Native American local contact information, and nongovernmental Native American outreach; and (4) an archaeological pedestrian survey of the Project boundary.

The SSJVIC records search results indicated that there have been three previous cultural resources investigations conducted, and no archaeological resources were recorded within the Project area. The SSJVIC also reported that there were three previous cultural resources investigations conducted within a 0.5-mile radius of the surrounding area and 13 cultural resources recorded. An examination of historic topographic maps and aerial images indicated that the Project site has largely been used for agricultural purposes.

The NAHC's Sacred Lands File search was negative and did not identify sacred places within the Project area. Taylored Archaeology contacted the listed Native American representatives on October 10, 2024. One response was received on October 29, 2024, from Samantha McCarty, Cultural Specialist II, of the Santa Rosa Rancheria Tachi Yokut Tribe. In her email, Samantha McCarty stated the Tribe is requesting the results of the SSJVIC and SLF search be shared with them, a curation agreement and burial treatment plan be in place prior to the start of construction, the Tribe to be retained for a cultural presentation to all construction crews prior to construction, and a tribal monitor and archaeological monitor be on site for all project ground disturbing activities. No other responses were received by representatives as of November 13, 2024.

No cultural resources were identified on the ground surface during the pedestrian survey.

Based on the results of this investigation, Taylored Archaeology recommends the following:

- In the event that previously unidentified archaeological remains are encountered during development or ground-moving activities in the Project boundary, all work should be halted until a qualified archaeologist can identify the discovery and assess its significance. In the event of accidental discovery of unidentified archaeological remains during development or ground-moving activities in the Project site, all work shall be halted in the

immediate vicinity until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, the Tulare County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and PRC 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the treatment and disposition of the remains.

A copy of this report will be provided to the SSJVIC for inclusion in the CHRIS database.

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1
INTRODUCTION

Taylored Archaeology performed a Phase I cultural resource assessment for the Copper Edge Tentative Subdivision Map Project (Project) in Kings County, California (Figure 1). As part of the development approval process, Kings County as the lead agency must comply with the California Environmental Quality Act (CEQA). The California Public Resources Code (PRC) 21000 (g) mandates that government agencies identify and mitigate the impacts of a project on the environment, including cultural resources.

1.1 PROJECT DESCRIPTION AND LOCATION

The Project proposes to construct a single-family residential development containing 556 lots on 79.28 acres and commercial development on 4.33 acres on an approximately 83-acre property. The Project proposes to construct these in five phases. A temporary 15.1-acre storm basin will be constructed in the center of the Project site before Phase 3 is constructed. The Project is currently in unincorporated Kings County and will be annexed into the City of Hanford. The Assessor's Parcel Numbers are 014-143-069 and 014-143-078.

The Project is located adjacent to the east of the City of Hanford on the northeast corner of 9 ¼ Avenue and Grangeville Boulevard. The proposed Project is within Section 19 of Township 18 South, Range 22 East, Mount Diablo Base Line and Meridian of the Remnoy, California 7.5-minute USGS quadrangle.

1.2 REGULATORY SETTING

In this report "cultural resources" are defined as prehistoric or historical archaeological sites as well as historical objects, buildings, or structures. In accordance with 36 Code of Federal Regulations (CFR) §60.4, "historical" in this report applies to cultural resources which are at least 50 years old. The significance or importance of a cultural resource is dependent upon whether the resource qualifies for inclusion at the local level in a local register of historical resources, at the state level in the California Register of Historical Resources (CRHR), or at the federal level in the National Register of Historic Places (NRHP). Cultural resources that are determined to be eligible for inclusion in the CRHR are called "historical resources" (California Code of Regulations [CCR] 15064.5[a]). Under this statue the determination of eligibility is partially based on the consideration of the criteria of significance as defined in 14 CCR 15064.5(a)(3). Cultural resources eligible for inclusion in the NRHP are deemed "historic properties".

1.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or determined to be eligible for listing in, the CRHR. Historical resources may include, but are not limited to, "any object, building,

structure, site, area, place, record, or manuscript which a lead agency determines to be historically or archaeologically significant" (PRC §5020.1[j]). In addition, a resource included in a local register of historical resources or identified as significant in a local survey conducted in accordance with the state guidelines are also considered historic resources under California Public Resources Code (PRC) Section 5020.1.

CEQA details appropriate measures for the evaluation and protection of cultural resources in §15064.5 of the CEQA Guidelines. According to CEQA guidelines §15064.5 (a)(3), criteria for listing on the CRHR includes the following:

> *(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.*
> *(B) Is associated with the lives of persons important in our past.*
> *(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.*
> *(D) Has yielded, or may be likely to yield, information important in prehistory or history.*

According to CEQA guidelines §21074 (a)(1), criteria for tribal cultural resources includes the following:

> *(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*
> *(A) included or determined to be eligible for inclusion in the California Register of Historical Resources.*
> *(B) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.*

Protection of cultural resources within California is additionally regulated by PRC §5097.5, which prohibits destruction, defacing, or removal of any historic or prehistoric cultural features on land under the jurisdiction of State or local authorities.

1.3 PROFESSIONAL QUALIFICATIONS

Archaeologist Consuelo Y. Sauls (M.A.), a Registered Professional Archaeologist (RPA 41591505), managed the assessment and authored this report for the Project. Ms. Sauls also conducted the records search and literature review, requested Sacred Lands File, and performed the pedestrian field survey of the Project site. Ms. Sauls meets the Secretary of the Interior's Standards for Professional Qualifications in Archaeology. Statement of Qualifications for key personnel is provided in Appendix A.

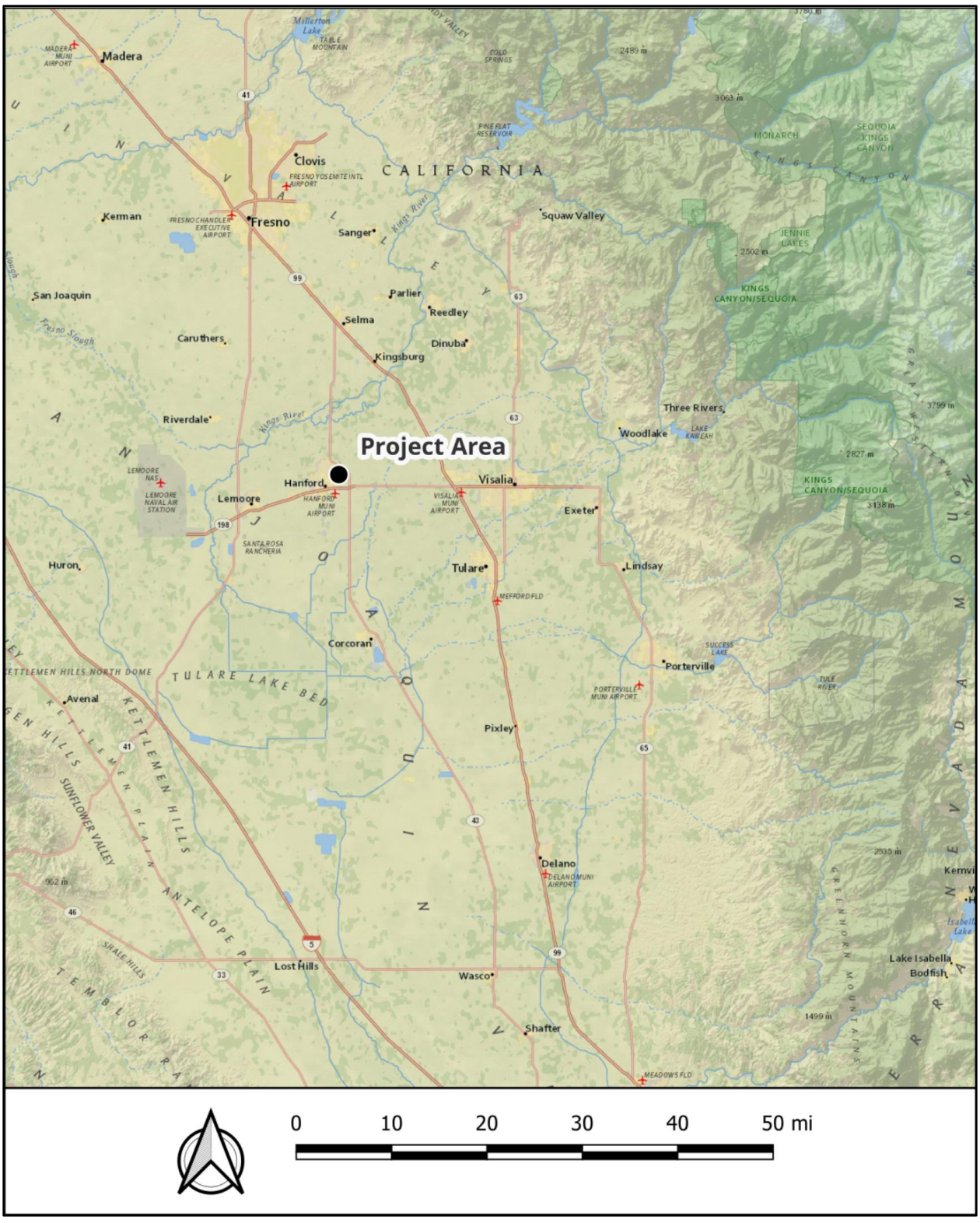


Figure 1-1 Project vicinity in Kings County, California.

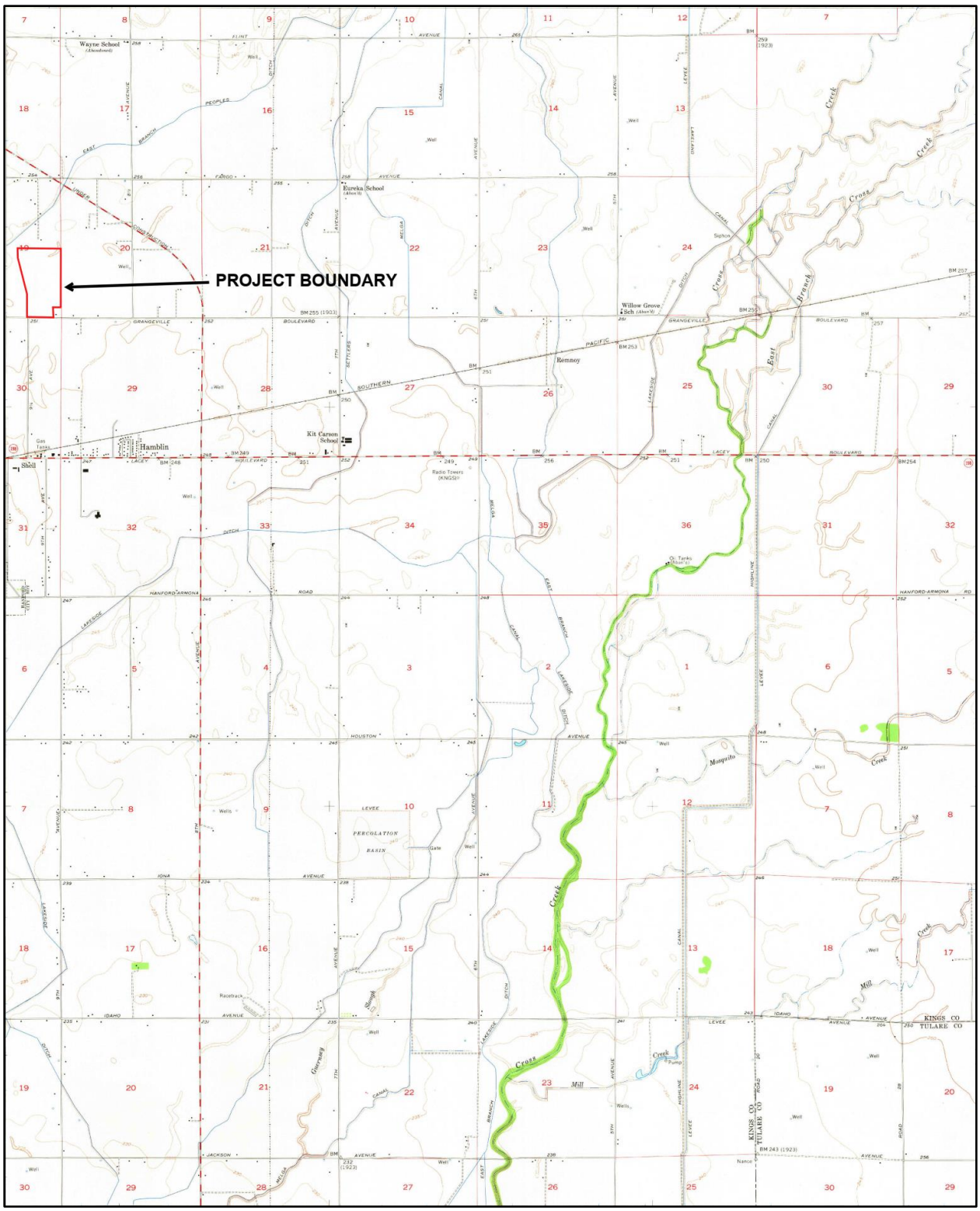


Figure 1-2 Project location on the Remnoy, CA 7.5-minute quadrangle.

Figure 1-3 Aerial view of the Project boundary

1.4 REPORT ORGANIZATION

This report documents the results of a cultural resource assessment of the proposed Project area. In order to assess potential Project impacts to archaeological and historical resources pursuant to CCR §15064.5, the following specific tasks were completed: (1) requesting a records search from the Southern San Joaquin Information Center (SSJVIC) of the California Historical Resources Information System (CHRIS), at California State University, Bakersfield; (2) requesting a Sacred Lands File Search and list of interested parties from the Native American Heritage Commission (NAHC) and initiating outreach to local Native American individuals and tribal representatives; (3) conducting an archaeological pedestrian survey, and (4) preparing this technical report.

Taylored Archaeology prepared this report following the California Office of Historic Preservation standards in the 1990 Archaeological Resources Management Report Recommended Contents and Format. Chapter 1 describes the introduction of the Project and its location, the state regulations and identifies the key personnel involved in this report. Chapter 2 is a literature review that summarizes the Project setting, including the natural, prehistoric ethnography, and historic background for the Project area and surrounding area. Chapters 3 details the methods used for cultural records searches, local Native American outreach, archaeological pedestrian survey, and built environment survey. Chapter 4 summarizes the results of the cultural resource investigation. Chapter 5 discusses the Project results and offers management recommendations. Chapter 6 is a bibliography of references cited within this report. The report also contains the following appendices: qualifications of key personnel (Appendix A), the CHRIS records search results (Appendix B), and Taylored Archaeology's nongovernmental Native American outreach (Appendix C).

2
PROJECT SETTING

2.1 NATURAL ENVIRONMENT

The Project site lies in the Central Valley of California, which is approximately 450 miles from north to south, and ranges in width east to west from 40 to 60 miles (Prothero 2017). The Central Valley is divided into two subunits, the Sacramento Valley in the north and the San Joaquin Valley in the south, which are each named after the primary rivers within each valley (Madden 2020). The Project is located approximately 250 feet above sea level on the open flat plains of the Southern San Joaquin Valley. Climate within the San Joaquin Valley is classified as a 'hot Mediterranean climate', with hot and dry summers, and cool damp winters characterized by periods of dense fog known as 'tule fog' (Prothero 2017).

The San Joaquin Valley is a comprised of a structural trough created approximately 65 million years ago and is filled with nearly 6 miles of sediment (Bull 1964). The San Joaquin Valley ranges from Stockton and the San Joaquin-Sacramento River Delta in the north to Wheeler Ridge to the south, ranging nearly sixty miles wide at its widest (Zack 2017). It is split by late Pleistocene alluvial fans between the San Joaquin River hydrologic area in the north and the Tulare Lake Drainage Basin in the south (Rosenthal et al 2007). The Project site is located within the latter of the two hydrologic units. The Kaweah, Tule, Kern, and Kings rivers flowed into large inland lakes with no outflow except in high flood events, in which the lakes would flow from through the Fresno Slough into the San Joaquin River. The largest of these inland lakes was the Tulare Lake, which occupied a vast area of Tulare and Kings Counties and was the largest freshwater lake west of the Mississippi. These four tributary rivers accounted for more than 95 percent of water discharged into Tulare Lake, with the remaining five percent sourced from small drainages originating in the Coast Ranges to the west (Adams et al. 2015).

The valley floor of the region was largely dominated by marshlands, lakes, and annual grasslands. Historically, these habitats provided a lush environment for large animals, including various migratory birds and other waterfowl, grizzly bear (*Ursus arctos californicus*), tule elk (*Cervus* sp.), pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), and mountain lion (*Puma concolor*) (Preston 1981). Native trees and plants observed in the Project vicinity include various blue, live, and white oaks (*Quercus* sp.), cottonwood (*Populus aegiros*), and willow (*Salix* sp.). The introduction of agriculture to the region resulted in large animals being forced out of their habitat. Common land mammals now include valley coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox, kit fox (*Vulpes macrotis*), and rabbits (Leporidae). Rivers and lakes throughout the valley provide habitat for freshwater fish, including rainbow trout (*Oncorhynchus mykiss*), Sacramento sucker (*Catostomidae* sp.), and Sacramento perch (*Archoplites interruptus*) (Preston 1981).

2.2 PREHISTORIC SETTING

Archaeologists develop models of prehistoric resource chronologies and descriptions of lifestyles based on data collected at archaeological sites they investigate to better understand the past. Models of prehistoric life patterns are developed from both archaeological and ethnographic research. Archaeological studies in the San Joaquin Valley began in the early 1900s with several archaeological investigations (Rosenthal et al. 2007). The Southern San Joaquin Valley is of one of the least understood areas within California due to a lack of well-grounded chronologies for large segments of the valley (Rosenthal et al. 2007). This is largely due to the valley floor being filled with thick alluvial deposits, and from human activity largely disturbing much of the valley floor due to a century and a half of agricultural use (Dillon 2002; Siefken 1999). Mound sites may have occurred as frequently as one every two or three miles along major waterways but studying such mounded occupations sites is difficult as most surface sites have been destroyed (Schenck and Dawson 1929). Much of the early to middle Holocene archaeological sites may be buried as deep as 10 meters due to millennia of erosion and alluvial deposits from the western Sierras (Moratto 1984).

Mass agricultural development has heavily disturbed and changed the landscape of the Southern San Joaquin Valley, from the draining of marshes and the vanishing of the extensive Tulare Lake, to grading nearly the entire valley for agricultural operations (Garone 2011). These activities have impacted or scattered much of the shallow surface deposits and mounds throughout the valley (Rosenthal et al 2007). Some researchers have suggested that potentially as much as 90 percent of all Central California archaeological sites have been destroyed from these activities (Riddell 2002).

The cultural traits and chronologies which are summarized below are largely based upon information discussed in multiple sources, including Bennyhoff and Fredrickson (1994) and Fredrickson (1973, 1974), Garfinkel (2015), McGuire and Garfinkel (1980), Moratto (1984), and Rosenthal et al. (2007). The most recent comprehensive approach to compiling a chronology of the Southern San Joaquin Valley prehistory is by Garfinkel in 2015, which builds off Rosenthal's 2007 previous work. Both Garfinkel's and Rosenthal's chronologies are calculated in years B.C. In the interest of maintaining cohesiveness with modern anthropological research, the dates of these chronologies have been adapted into years before present (B.P.).

The Paleo-Indian Period (13,500-10,600 cal B.P.) was largely represented by ephemeral lake sites which were characterized by atlatl and spear projectile points. Around 14,000 years ago, California was largely a cooler and wetter place, but with the retreat of continental Pleistocene glaciers, California largely experienced a warming and drying period. Lakes filled with glacial meltwater were located in the valley floor and used by populations of now extinct large game animals. A few prehistoric sites were discovered near the southwestern shore of Tulare Lake (Garfinkel 2015). Foragers appear to have operated in small groups which migrated on a regular basis.

During the Lower Archaic Period (10,500-7450 cal B.P.), climate change created a largely different environment which led to the creation of larger alluvial fans and flood plains. Most of the

archaeological records of the prior period wound up being buried by geological processes. During this time, cultural patterns appear to have emerged between the foothill and valley populations of the local people. The foothill sites were often categorized by dense flaked and ground stone assemblages, while the valley sites were instead characterized by a predominance of crescents and stemmed projectile points. Occupation within the area is represented mostly by isolated discoveries, and along the former shoreline of Tulare Lake finds are typically characterized by chipped stone crescents, stemmed points, and other distinctive flaked stone artifacts (Rosenthal et al. 2007). Variations in consumption patterns emerged as well, with the valley sites more marked by consumption of waterfowl, mussels, and freshwater fish, while the foothills sites saw an increase in nuts, seeds, and a more narrowly focused diet than the valley sites.

The Middle Archaic (7450-2500 cal B.P.) saw an increase in semi-permanent villages along river and creek settings, with more permanent sites located along lakes with a more stable supply of water and wildlife. Due to the warmer and drier weather of this period, many lakes within the valley dramatically reduced in size, while some vanished completely (Garone 2011). Cultural patterns during this time saw an increase in stone tools, while a growth in shell beads, ornaments, and obsidian evidence an extensive and ever-growing long-distance trade network. Little is known of cultural patterns in the valley during the Upper Archaic (2500-850 B.P.), but large village structures appeared to be more common around local rivers. An overall reduction of projectile point size suggests changing bow and arrow technologies. Finally, the Emergent Period (850 cal B.P. - Historic Era) was generally marked by an ever-increasing specialization in tools, and the bow and arrow generally replaced the dominance of the dart and atlatl. Cultural traditions ancestral to those recorded during ethnographic research in the early 1900s are identifiable.

2.3 ETHNOGRAPHY

The Project area is in the Southern Valley Yokuts ethnographic territory of the San Joaquin Valley. The Yokuts were generally divided into three major groups, the Northern Valley Yokuts, the Southern Valley Yokuts, and the Foothill Yokuts. The Yokuts are a sub-group of the Penutian language that covers much of coastal and central California and Oregon (Callaghan 1958). The Yokuts language contained multiple dialects spoken throughout the region, though many of them were mutually understandable (Merriam 1904).

The Yokuts have been extensively researched and recorded by ethnographers, including Powers (1877), Kroeber (1925), Gifford and Schenck (1926, 1929), Gayton (1945), Driver (1937), Harrington (1957), Latta (1977), and Wallace (1978). Much of the research from these ethnographers focuses on the central Yokuts tribes due to the northernmost tribes being impacted by Euro-Americans during the California Gold Rush of the mid 1800s, and by the southernmost tribes often being removed and relocated by the Spanish to various Bay Area or coastal missions. The central Yokuts tribes, and especially the western Sierra Nevada foothill tribes, were the most intact at the time of ethnographic study.

The most detailed ethnographic information gathered regarding Native American group territories in Central California is located within maps prepared by Kroeber. Based upon Kroeber's

map of Southern and Central Yokuts (1925: Plate 47), the Project area is within the Nutunutu Yokuts territory, who occupied the southern bank of the Kings River in modern-day Kings County (Kroeber 1925; Latta 1977). The closest village in this area was *Chiao* which was located along the Kings River approximately 7 miles northwest of the Project site (Kroeber 1925).

Primary Yokuts villages were typically located along lakeshores and major stream courses, with scattered secondary or temporary camps and settlements located near gathering areas in the foothills. Yokuts were organized into groups originally designated as tribelets by Kroeber, with one or more linked villages and smaller settlements within a territory (Kroeber 1925).

Designation of these units as 'tribelets' is often viewed as pejorative by many Native Americans, and for the remainder of this report will be referred to as 'local tribes' instead. Each local tribe was a land-owning group that was organized around a central village and shared common territory and ancestry. Most local tribe populations ranged from 150 to 500 people (Kroeber 1925). These local tribes were often led by a chief, who was often advised by a variety of assistants including the winatum, who served as a messenger and assistant chief (Gayton 1945). Early studies by Kroeber (1925), Gifford and Schenck (1926), and Gayton (1945) concluded that social and political authority within local tribes was derived from male lineage and patriarchy. However, more recent reexaminations (Dick-Bissonnette 1998) argue that this assumption of patriarchal organization was based on male bias by early 20th century researchers, and instead Yokuts sociopolitical authority was matriarchal in nature and centered around matrilineal use-rights and women's work groups.

Due to the abundance of natural resources within the greater Tulare Lake area, the Yokuts maintained some of the largest populations in North America west of the continental divide (Cook 1955a).

2.4 HISTORIC SETTING

2.4.1 California History

European contact in modern-day California first occurred in 1542 with the arrival of a Spanish expedition lead by Juan Rodríguez Cabrillo into San Diego Bay (Engstrand 1997). Expeditions along the California coast continued throughout the sixteenth century and primarily focused on finding favorable harbors for further expansion and trade across the Pacific. However, rocky shorelines, unfavorable currents, and wind conditions made traveling north from New Spain to the upper California coast a difficult and time-consuming journey (Eifler 2017). The topography of California, with high mountains, large deserts, and few natural harbors lead to European expansion into California only starting in the 1760s. As British and Russian expansion through fur trading encroached on California from the north, Spain established a system of presidios, pueblos, and missions along the California coast to defend its claim, starting with Mission San Diego de Alcalá in 1769 (Engstrand 1997).

2.4.2 Central California History

The San Joaquin Valley did not experience contact with Europeans until the late 1700s (Starr 2007). Life at the California missions was hard and brutal for Native Americans, with many dying of disease, poor conditions, and many fleeing to areas not under direct Spanish control (Jackson and Castillo 1995). The earliest exploration of the San Joaquin Valley by Europeans was likely by the Spaniards when in the fall of 1772 a group known as the Catalonian Volunteers entered into the valley through Tejon Pass in search of deserters from the Southern California missions (Zack 2017). However, the group only made it as far north as Buena Vista Lake in modern day Kern County before turning around due to the extensive swamps. Additional excursions to the valley were for exploration such as those led by Lieutenant Bariel Moraga in 1806, but also to find sites for suitable mission sites and to track down Native Americans fleeing the coastal missions (Cook 1958).

Subsequent expeditions were also sent to pursue outlaws from the coast who would often flee to the valley for safety. One of the subsequent explorations was an expedition in 1814 to 1815 with Sargent Juan Ortega and Father Juan Cabot, who left the Mission San Miguel with a company of approximately 30 Spanish soldiers and explored the San Joaquin Valley (Smith 2004). This expedition passed through the Kaweah Delta and modern-day Visalia and made a recommendation to establish a mission near modern-day Visalia. However, with European contact also came European diseases. Malaria and other new diseases were brought by Europeans, and in 1833 an epidemic of unknown origin traveled throughout the Central Valley. Some estimates place the Native American mortality of the epidemic as high as 75 percent (Cook 1955b). Combined with the rapid expansion of Americans into California in 1848 during the Gold Rush, Native American populations within the valley never fully recovered (Eifler 2017).

Initial settlement within the valley by Europeans in the 1830s was largely either by trappers or horse thieves (Clough and Secrest 1984). In fact, horse and other livestock theft was so rampant that ranching operations on the Rancho Laguna de Tache by the Kings River could not be properly established (Cook 1962). With the end of the Mexican American War and the beginning of the gold rush in 1848, the San Joaquin Valley became more populated with ranchers and prospectors. Most prospectors traveled by sea to San Francisco and used rivers ranging from the Sacramento River to the San Joaquin River to access the California interior (Eifler 2017). Most areas south of the San Joaquin River were less settled simply because those rivers did not connect to the San Francisco Bay area except in wet flood years. By 1850, California became a state, Tulare County was established in 1853, and Kings County was formed out of the western half of Tulare County in 1893.

2.4.3 Local History

The arrival of rail lines in the late 1800s brought an increase in agriculture and farms that clashed with existing ranching operations in the local area. One such conflict was the Mussel Slough Tragedy of 1880, in which seven locals died in a fight over land use between ranchers and the Southern Pacific Railroad (Clough and Secrest 1984). Escalating conflicts and livestock disputes between ranchers and farmers lead to the “No Fence Law” in 1874, which forced ranchers to pay

for crop and property damage caused by their cattle (Ludeke 1980). With the passage of this law and the expansion of irrigation systems, predominant land use in the 1870s switched from grazing to farming (Mitchell 1974). This led to the beginning of the vast change of the San Joaquin Valley from native vegetation and grasslands to irrigated crops (Varner and Stuart 1975). During this time, small farming towns were established throughout the valley floor (Clough and Seacrest 1984).

Because water rights within California originally arose from the first come first serve policy of the Gold Rush era, diverting surface water to farms became big business, but a convoluted mess of customs, traditions, and conflicting claims (Zack 2017). To solve this mess, the Wright Act of 1887 was passed that allowed residents to petition a local county board of supervisors to create irrigation districts that had the power to issues bonds, and tax land within the district boundaries to pay for the creation and maintenance of canals and ditches for irrigation purposes.

At the same time, an important step forward was made in ditch-digging technology that allowed irrigation systems to be built at a faster pace. From the 1840s to 1890s, farm ditches and canals were largely constructed using buckboards and slip-scoops, which involved the use of a board pulled by horses in an upright position to level ground (Bulls 2010). Between 1883 and 1885, Scottish immigrant James Porteous had moved to Fresno and made significant improvements to the buckboard style scraper that allowed the new scraper to be pulled by two horses and scrape and move soil while dumping it at a controlled depth. This new design was patented and sold as the “Fresno Scraper”, which lead to an explosion of ditch digging efforts within the San Joaquin Valley (Zack 2017).

The cumulative effect of this explosion of water diversion from the Kings, Kern, Kaweah, and Tule Rivers, which supplied 95 percent of the water, had a devastating effect on Tulare Lake (Adams et al. 2015). Between 1876 and 1885, the northern shoreline of Tulare Lake near the Lower Kings River had receded southwards by five miles (Baker 1876; Hammond 1885). By 1898, the lake had completely dried up (Figure 2-1).

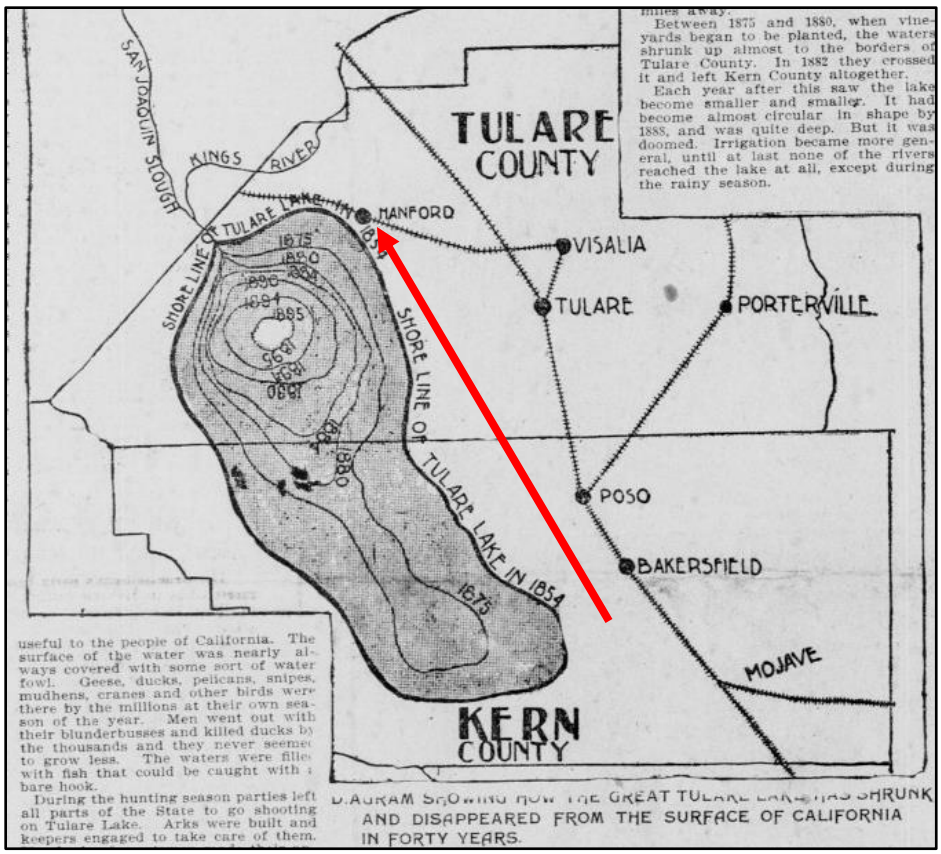


Figure 2-1 Map of Tulare Lake with receding shoreline, 1854 to 1898. Red arrow shows approximate Project location (Lee 1898).

The former lakebed was turned into agricultural lands, with water provided by the new canals and ditches. The destruction of the lake was another major impact to the Native American populations of the region. Diversion of the water from the former lakebed was never fully permanent, however, with heavy rains leading to the reemergence of Tulare Lake in 1937, 1952, 1969, 1983, 1997, and most recently in 2023 (Garrison et al. 2023).

Hanford was first formed as a railroad stop in 1877 when the Southern Pacific Railway laid a new cross-valley line connecting Goshen near Visalia to Coalinga on the west side of the valley (Hanford 2024). Hanford quickly grew into the trading center of the local area, incorporated in 1891 after a few setbacks with local fires, and became the County Seat when Kings County was formed in 1893. Tensions with the Southern Pacific Railroad's monopoly on shipping and transportation lead to Hanford fighting for, and in 1897 receiving, a new competing north to south line of the San Francisco and San Joaquin Valley Railroad connecting Fresno to Bakersfield via Hanford (Menefee and Dodge 1913). The Southern Pacific Railway later formed into the Union Pacific Railroad, and the San Francisco and San Joaquin Valley Railroad later formed into the Burlington Northern Santa Fe Railroad.

3
METHODS

3.1 RECORDS SEARCH

On October 4, 2024, Taylored Archaeology requested a cultural resource records search from the SSJVIC of the CHRIS at California State University in Bakersfield, California. The purpose of this request was to identify any prehistoric or historical resources on or near the Project site that had been previously recorded within the Project boundary and a 0.5-mile radius of the Project area; and review of prior cultural studies completed in or near the Project boundary including recorded cultural resources such as historic and prehistoric archaeological sites, lithic debitage, buildings, or canals. SSJVIC staff researched historical United States Geological Survey (USGS) topographic maps, reports of previous cultural resource investigations, archaeological site and survey base maps, cultural resource records (DPR forms) as well as listings of the Historic Properties Directory of the Office of Historic Preservation, General Land Office Maps, Archaeological Resources Directory, and the California Inventory of Historic Resources (Appendix B).

3.2 ARCHIVAL RESEARCH

Archival research was conducted to investigate the historical background for any potential historical natural water sources, potential historic structures, buildings and historical deposits that may exist, and land use within the Project boundary. Historical maps, historical aerial photographs, historical USGS topographic maps, Google Earth aerial photographs, Google Street View photos, books, scholarly articles, and other records were used to better understand the prehistory and history of the Project area. The results of this research are presented in Chapter 4.

3.3 NATIVE AMERICAN OUTREACH

On October 4, 2024, Taylored Archaeology sent a request to the Native American Heritage Commission (NAHC) for a Sacred Lands File (SLF) search, to identify any known places of religious, sacred activity or traditional use or gathering areas are present in or near the Project area. The NAHC responded on October 10, 2024, with a letter including contact information for local Native American tribal representatives who may have knowledge or interest in sharing information of resources in the Project area and surrounding area. Each Native American representative listed was sent a nongovernmental outreach letter and a map notifying them of the Project and asking if they had any knowledge of the Project area or surrounding vicinity. Follow-up communication was performed via email as appropriate. The SLF results are in Chapter 4.

3.4 ARCHAEOLOGICAL PEDESTRIAN SURVEY

A pedestrian survey was conducted by Consuelo Sauls on October 19, 2024, on the entire Project site. The Project site consists of a walnut orchard in the northern half and field crops in the southern portion of the site had been plowed at the time of the survey, thus exposing bare soil in most of the project site. Ms. Sauls walked a 10-meter parallel transects within the project boundary, oriented north to south. The transects were paced and oriented by map and landmarks within the southern half of the site and followed orchards rows in the northern half of the site. The whole area in the Project boundary was accessible and surveyed to identify any archaeological deposits that may be present on the ground surface. Ms. Sauls used a plan map, visible landmarks, and Gaia GPS application for navigation to locate and survey the Project area. She also photographed the survey area using an iPhone 11 Pro digital camera. Ms. Sauls recorded her observations on a Survey Field Record.

4
RESULTS

4.1 RECORDS SEARCH

The SSJVIC provided the records search results in a letter dated October 14, 2024 (Appendix B). According to the search results, three prior cultural resources studies were conducted within the Project area (Table 4-1). KI-00103 is adjacent to the southern Project boundary along Grangeville Boulevard. No prehistoric resources were encountered during its pedestrian survey. KI-00238 and KI-00269 are archaeological desktop reviews with no associated surveys. In addition, three previous cultural resources studies were conducted within a 0.5-mile radius of the Project site as depicted in Table 4-2. None of these studies intersected the Project site.

The results of the records search indicate that no cultural resources were previously recorded within the Project boundary and 13 cultural resources were recorded within the 0.5-mile search radius (Table 4-3). The 13 cultural resources are all historic-era, and do not overlap the Project boundary.

Table 4-1
Previous Cultural Resources Studies within the Project Area

Report Number	Author(s)	Date	Report Title	Study
KI-00103	Wendy M. Nettles and Kevin L. Palmer	2001	Historic Property Survey Report for the Grangeville Boulevard Widening and Overlay Project 10th Avenue to State Route 43 Hanford, California	Archaeological and Built Environment Filed Surveys
KI-00103A			Negative Archaeological Survey Report for the Grangeville Boulevard Widening and Overlay Project 10th Avenue to State Route 43, Hanford, California	
KI-00103B			Historical Architectural Survey Report for the Grangeville Boulevard Widening and Overlay Project 10th Avenue to State Route 43, Hanford, California	
KI-00238	Jack Meyer, D. Craig Young and Jeffrey S. Rosenthal	2010	Volume I: A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9	Archaeological Desktop Review
KI-00269	Robert A. Schiffman	2015	Archaeological Evaluation of Areas Selected for Possible Nuclear Power Plants by the LADWP	Archaeological Desktop Review

Table 4-2
Previous Cultural Resources Studies within 0.5-mile of the Project Area

Report Number	Author(s)	Date	Report Title	Study
KI-00093	Christopher Ryan	2000	Supplemental Archaeological Survey for the Laguna Irrigation District Transmission Line Improvement Project, Fresno and Kings Counties, California	Supplemental Archaeological Survey of Utility Lines
KI-00100	Keith R. Brown and Allen G. Pastron	2000	Historical and Cultural Resource Assessment Update Existing Telecommunications Facility Site No. CV-503-01 Glendale Avenue Kings County, California	Historical and Cultural Resource Desktop Review
KI-00268	Alexandra Greenwald	2011	Archaeological Survey Technical Report for the California High Speed Train-Fresno to Bakersfield Section	Archaeological Field Survey and Extended Phase I Survey High-Speed Rail

Table 4-3
Previous Recorded Cultural Resources within 0.5-mile radius of the Project Boundary

Resource Number	Age Association	Resource Type	Year Recorded	Resource Within Project Boundary
P-16-000105	Historic	Building; Single- family house	2001 by Applied EarthWorks	No
P-16-000106	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000107	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000108	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000109	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000110	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000111	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000112	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000113	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000114	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000115	Historic	Building; Single-family house	2001 by Applied EarthWorks	No
P-16-000116	Historic	Building; two storage buildings	2001 by Applied EarthWorks	No

Resource Number	Age Association	Resource Type	Year Recorded	Resource Within Project Boundary
P-16-000246	Historic	Building; Canal	2019 by ASM Affiliates, Inc.	No

4.2 ARCHIVAL RESEARCH

The Project site and the surrounding area were mostly agricultural use. Historical map coverage of the Project site dates to 1927. A review of the 1927 USGS topographic map depicts the site with no structures and bound to the south by Grangeville Boulevard in the same alignment as present-day. A 1954 USGS topo map depicts the site in a similar manner, with a realignment of State Route 43 noted as under construction. Other than increased development from the Hanford urban area to the west of the site, no changes are noted between 1954 to 2021 (NETROnline 2024). Historic aerial photograph coverage of the Project site dates to 1957. A review of historic aerial photographs shows the Project site utilized for row crops from at least 1956 to 2012 (NETROnline 2024, Google 2024). Starting in 2012 the Project site appears similar to its current configuration with the northern portion of the Project site utilized as an orchard (Google 2024).

4.3 NATIVE AMERICAN OUTREACH

On October 10, 2024, the NAHC responded to Taylored Archaeology's request, and stated that its Sacred Lands File results were negative for the presence of cultural resources within the Project area (Appendix C). The NAHC recommended to contact the Native American tribal representatives culturally affiliated with the Project area on a list they provided.

The following Native American organizations/individuals were contacted from the list provided by NAHC below:

1. Chairperson Delia Dominguez of the Kitanemuk & Yowlumne Tejon Indians
2. Cultural Specialist II Samantha McCarty of the Santa Rosa Rancheria Tachi Yokut Tribe
3. THPO Shana Powers of the Santa Rosa Rancheria Tachi Yokut Tribe
4. Cultural Specialist I Nichole Escalon of the Santa Rosa Rancheria Tachi Yokut Tribe
5. Cultural Resource Director Bob Pennell of the Table Mountain Rancheria
6. Chairperson Michelle Heredia-Cordova of the Table Mountain Rancheria
7. Tribal Archaeologist Joey Garfield of the Tule River Indian Tribe
8. Environmental Department Director Kerri Vera of the Tule River Tribe
9. Chairperson Neil Peyron of the Tule River Indian Tribe
10. Chairperson Kenneth Woodrow of the Wuksachi Indian Tribe/Eshom Valley Band

According to prior communication with the Santa Rosa Rancheria, Tribal Historic Preservation Officer (THPO) Shana Powers is no longer with the Santa Rosa Rancheria Tachi Yokut Tribe and Nichole Escalon of the Santa Rosa Rancheria Tachi Tribe is now THPO.

The outreach letters were sent via email on October 28, 2024, to all the Native American representatives on the contact list. The letters included a description of the proposed Project and

a location map. Follow-up emails were sent on November 7, 2024. One response was received on October 29, 2024, from Samantha McCarty, Cultural Specialist II, of the Santa Rosa Rancheria Tachi Yokut Tribe. In her email, Samantha McCarty asked for the name and contact information of the lead agency. On October 29, 2024, archaeologist Consuelo Sauls provided Samantha McCarty the contact information for DR Mata Consulting, the project manager. As a follow-up to a phone call between Samantha McCarty and Darlene Mata, Samantha sent an email to Taylored Archaeology, stating the Tribe is requesting the results of the SSJVIC and SLF search be shared with them, a curation agreement and burial treatment plan be in place prior to the start of construction, the Tribe to be retained for a cultural presentation to all construction crews prior to construction, and a tribal monitor and archaeological monitor be on site for all project ground disturbing activities. As of November 13, 2024, Taylored Archaeology has not received any additional responses to the Native American outreach letters or emails.

4.4 ARCHAEOLOGICAL PEDESTRIAN SURVEY RESULTS

The results of the pedestrian survey indicate that the Project boundary consists of agricultural fields with no noted development (Figures 4-1 and 4-2). The Project site consists of an orchard in the northern half and tilled field in the southern half. Ground surface visibility was generally excellent (95 to 100 percent), though small portions of the ground surface were obscured by grass and weeds (Figure 4-3). Rodent burrows and any related soil piles were closely examined for lithic scatters and for indications of buried deposits.

No prehistoric or historic archaeological resources were identified during the pedestrian survey. The natural topography of the area has been altered by historical and modern agricultural practices and much of the land on the Project site has been graded and plowed, which has caused additional disturbance to the soil. While past agricultural activities may have potentially destroyed or obscured ground surface evidence of archaeological resources within the Project boundary, intact archaeological resources related to prior occupation of the area may potentially exist below the ground surface.

Figure 4-1 Southern portion of Project site, facing north.

Figure 4-2 Central portion of Project site, facing north.

Figure 4-3 Ground visibility in northern portion of Project site, facing east.

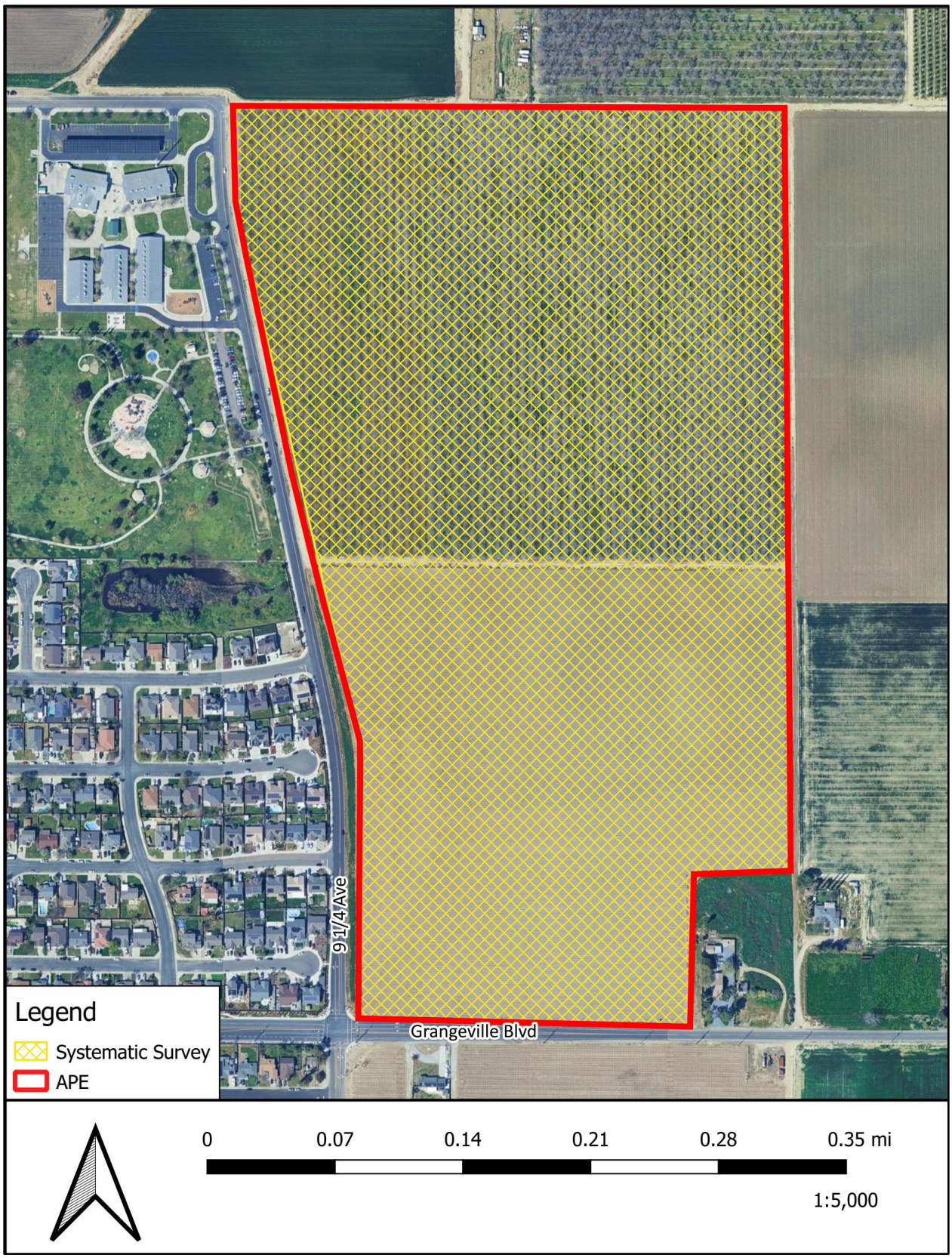


Figure 4-4 Survey coverage of Project site.

5
CONCLUSIONS AND RECOMMENDATIONS

Taylored Archaeology performed a Phase I Cultural Resources Assessment for the Copper Ridge Tentative Subdivision Maps Project in Kings County, California. The SSJVIC records search results indicated that there have been three previous cultural resources investigations conducted within, and no cultural resources were recorded within, the Project area. The SSJVIC also reported that there were three previous cultural resources investigations conducted within a 0.5-mile radius of the Project site and 13 cultural resources previously recorded within a 0.5-mile radius. An examination of historic topographic maps and aerial images indicated that the Project site has largely been used for agricultural purposes. Taylored Archaeology's pedestrian survey of the Project boundary did not reveal any prehistoric or historic cultural resources.

The NAHC's SLF search results were negative, and the NAHC recommended contacting local Native American representatives. Taylored Archaeology contacted the listed Native American representatives on October 10, 2024. One response was received on October 29, 2024, from Samantha McCarty, Cultural Specialist II, of the Santa Rosa Rancheria Tachi Yokut Tribe. In her email, Samantha McCarty stated the Tribe is requesting the results of the SSJVIC and SLF search be shared with them, a curation agreement and burial treatment plan be in place prior to the start of construction, the Tribe to be retained for a cultural presentation to all construction crews prior to construction, and a tribal monitor and archaeological monitor be on site for all project ground disturbing activities. No other responses were received from Native American representatives as of November 13, 2024.

To maintain consistency with state statutes and regulations regarding cultural resources, Taylored Archaeology advises the following:

- In the event of accidental discovery of unidentified archaeological remains during development or ground disturbing activities in the Project area, all work shall be halted in immediate vicinity (within a 100-foot radius) until a qualified archaeologist can identify the discovery and assess its significance.

- If human remains are uncovered during construction, work shall be halted, and the Kings County Coroner is to be notified to investigate the remains and arrange proper treatment and disposition. If the remains are identified on the basis of archaeological context, age, cultural associations, or biological traits to be those of a Native American, California Health and Safety Code 7050.5 and California Public Resources Code 5097.98 require that the coroner notify the Native American Heritage Commission (NAHC) within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will make recommendations regarding the treatment and disposition of the remains.

6
REFERENCES

Adams, Kenneth D., Robert M. Negrini, Edward R. Cook, and Seshadri Rajagopal.
2015 Annually resolved late Holocene paleohydrology of the southern Sierra Nevada and Tulare Lake, California. *Water Resources Research* 51(12):9708-9724.

Baker, P.Y.
1876 *Map of Tulare County, California.* Unknown Publisher. David Rumsey Map Collection. https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~205302~3002357:Map-Of-Tulare-County-California, accessed October 8, 2023.

Bennyhoff, James, and David A. Fredrickson.
1994 *Toward a New Taxonomic Framework for Central California Archaeology, edited by Richard E. Hughes*. Number 52, Contributions of the University of California Archaeological Research Facility, Berkley, California.

Bull, William B.
1964 Geomorphology of Segmented Alluvial Fans in Western Fresno County, California. *Geological Survey Professional Paper 352-E.* United States Government Printing Office, Washington, D.C.

Bulls, Diana.
2010 The Fresno Scraper: A Mechanical Engineering Marvel. *Kings River Life Magazine*. August 14.

Callaghan, Catherine A.
1958 California Penutian: History and Bibliography. *International Journal of American Linguistics*. 24(3):189-194.

Clough, Charles W. and William B. Secrest, Jr.
1984 *Fresno County The Pioneer Years: From the Beginnings to 1900.* Panorama West Publishing, Fresno, California.

Cook, Sherburne F.
1955a *The Aboriginal Population of the San Joaquin Valley, California.* Anthropological Records 16:31–80. University of California, Berkeley.

1955b *The Epidemic of 1830-1833 In California and Oregon.* University of California Publications in American Archaeology and Ethnology 43(3):303-326. University of California, Berkeley.

1958 The Project Gutenberg eBook, *Colonial Expeditions to the Interior of California Central Valley, 1800-1820*

1962 *Expeditions to the Interior of California*: *Central Valley, 1820-1840*. Anthropological Records 20(5):151-212.

Dick-Bissonnette, Linda E.
1998 Gender and Authority among the Yokoch, Mono, and Miwok of Central California. *Journal of Anthropological Research* 54(1):49-72.

Dillon, Brian D.
2002 California Paleo-Indians: Lack of Evidence, or Evidence of a Lack? In *Essays in California Archaeology: A Memorial to Franklin Fenenga,* edited by William J. Wallace and Francis A. Riddell, pp. 110–128. Contributions of the University of California Archaeological Research Facility No. 60. Berkeley.

Driver, Harold E.
1937 Cultural Elements Distribution: VI, Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53–154.

Eifler, Mark A.
2017 *The California Gold Rush: The Stampede that Changed the World.* Routledge Taylor & Francis Group Press, Las Vegas.

Engstrand, Iris H.W.
1997 Seekers of the "Northern Mystery": European Exploration of California and the Pacific. *California History*, 76(2/3):78–110.

Fredrickson, David A.
1973 Early Cultures of the North Coast Ranges, California. Ph.D. dissertation. Department of Anthropology, University of California, Davis.

1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41-54.

Hammond, William.
1885 *Detail Irrigation Map, Lemoore and Hanford Sheet.* California Department of Engineering. David Rumsey Map Collection. https://www.davidrumsey.com/luna/servlet/detail/RUMSEY~8~1~207669~3003414:Lemoore-and-Hanford-Sheet--Detail-I, accessed November 2, 2024.

Hanford, City of
2024 "History" https://www.ci.hanford.ca.us/1290/History, accessed November 13, 2024.

Garfinkel, Alan P.
2015 Archaeological Background and Cultural Sequence for The San Joaquin, Central California. Electronic document, https://www.academia.edu/14721089/ArchaeologicalBackgroundfor theSanJoaquinValleyCentralCalifornia, accessed November 2, 2024. Academia.edu

Garrison, Jessica, Ian James, Susanne Rust, and Aida Ylanan.
2023 *How powerful land barons shaped the epic floods in California's heartland*. Los Angeles Times. September 28, 2023. https://www.latimes.com/environment/story/2023-09-28/central-valley-land-barons-tulare-lake-basin-kings-county-flooding-water-farms-boswell, accessed November 2, 2024.

Garone, Philip
2011 *The Fall and Rise of the Wetlands of California's Great Central Valley.* University of the Press, Berkeley.

Gayton, Anna H.
1945 Yokuts and Western Mono Social Organization. *American Anthropologist* 47(3):409–426.

Gifford, E.W., and W. Egbert Schenck
1926 Archaeology of the Southern San Joaquin Valley, California. *Publications in American Archaeology and Ethnology* 23(1).

1929 Archaeology of the Northern San Joaquin Valley. *Publications in American Archaeology and Ethnology* 25(4).

Google Earth.
2024 Google Earth Pro Software. Accessed November 2, 2024.

Harrington, Mark R.
1957 *A Pinto Site at Little Lake, California*. No. 17. Southwest Museum.

Jackson, Robert H. and Edward Castillo
1995 *Indians, Franciscans, and Spanish Colonization: The Impacts of the Mission System on California Indians*. University of New Mexico Press, Albuquerque, New Mexico.

Kroeber, Alfred L.
1925 *Handbook of California Indians*. Bureau of American Ethnology Bulletin 78, Washington, D.C.

Latta, Frank F.
1977 *Handbook of Yokuts Indians*. Bear State Books, Santa Cruz, California.

Lee, Daryl.
1898 Tulare Lake Dried Up: Disappearance of the Largest Body of Fresh Water in California. *The San Francisco Call. 14 August*:1. San Francisco, California. https://cdnc.ucr.edu/?a=d&d=SFC18980814.2.138.8&e, Accessed November 2, 2024.

Ludeke, John.
1980 The No Fence Law of 1874: Victor for San Joaquin Valley Farmers. *California History* 2(59):98-115. University of California Press, Berkley, California.

Madden, Derek.
2020 *The Naturalist's Illustrated Guide to the Sierra Foothills and Central Valley*. Heyday Publishing, Berkley, California.

McGuire, Kelly R. and Alan P. Garfinkel.
1980 Archaeological Investigations in the Southern Sierra Nevada: The Bear Mountain Segment of the Pacific Crest Trail. *Cultural Resources Publications, Archaeology*, unnumbered: xii – 304.

Menefee, Eugene and Fred A. Doge.
1913 *A History of Tulare and Kings Counties California.* Historic Record Company, Los Angeles, California.

Merriam, Hart C.
1904 Distribution of Indian Tribes in the Southern Sierra and Adjacent Parts of the San Joaquin Valley, California. *Science* 19(494):912-917.

Mitchell, Annie R.
1974 *A Modern History of Tulare County.* Limited Edition of Visalia, Incorporated. Visalia, California.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, New York, NY.

NETROnline.
2024 "Historic Aerials by NETROnline". https://www.historicaerials.com/viewer. Accessed November 2, 2024.

Powers, Stephen
1877 *Tribes of California.* Washington Press, Washington, D.C.

Preston, William L.
1981 *Vanishing Landscapes: Land and Life in the Tulare Lake Basin.* Olympic Marketing Corp, Hopkins.

Prothero, Donald R.
2017 *California's Amazing Geology.* Taylor and Francis Group.

Riddell, Francis A.
2002 *The Status of San Joaquin Valley Archaeological.* In Essays in California Archaeology: A Memorial to Franklin Fenenga edited by William J. Wallace and Francis A. Riddell, pp. 55-61. University of California Archaeological Research Facility, Contribution Number 60. Berkeley, California.

Rosenthal, Jeffrey S., Gregory G. White, and Mark Q. Sutton
2007 The Central Valley: A View from the Catbirds's Seat. In *California Prehistory: Colonization, Cultural, and Complexity,* edited by Terry L. Jones and Kathryn A. Klar. AltaMira Press, Lanham, Maryland.

Schenck, W.E., and E.J. Dawson
1929 Archaeology of the Northern San Joaquin Valley. *University of California Publications in American Archaeology and Ethnology* 25:289-413. University of California, Bakersfield, California.

Siefken, Nelson.
1999 Archaeology of the Redfeldt Mound (CA-KIN-66), Tulare Basin, California. M.A. Thesis, Department of Anthropology, California State University, Bakersfield.

Smith, Wallace.
2004 *Garden of the Sun: A History of the San Joaquin Valley: 1772-1939.* 2nd ed., revised by William B. Secrest, Jr. Linden Publishing, Fresno, California.

Starr, Kevin.
2007 *California: A History.* Random House Publishing Group, New York, New York.

Stuart, David R.
1974 *California's Department of Transportation: Convert Portion of Route 41 to a Full Freeway*. California State University, Fresno, California. Prepared for Caltrans District 6.

U.S. Geological Survey (USGS)
1927 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

1954 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

2012 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

2015 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

2018 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

2021 *Remnoy, California, Quadrangle Map*. 7.5-minute series. U.S. Geological Survey, Denver, Colorado.

Varner, Dudley M. and David R. Stuart.

1975 *Survey of Archaeological and Historical Resources in the Central Yokohl Valley, Tulare County, California.* Sacramento: Report to the U.S. Bureau of Reclamation.

Wallace, William J.

1978 Southern Valley Yokuts. In *Handbook of North American Indians, Vol. 8, California*. Ed. Robert F. Heizer, pp. 448-461. The Geological Society of American, Inc., Boulder, Colorado

Zack, Richard.

2017 *Quest for Water Tulare Irrigation District its History, People, and Progression.* PartnerPress.org, Carlsbad, California.

APPENDIX A

Personnel Qualifications

Consuelo Sauls, M.A., RPA 41591505
Archaeologist
csaulsarchaeo@gmail.com
559.797.1572

Areas of Expertise

- Cultural Resource Management
- CEQA and Federal regulations
- Prehistoric Archaeology
- Laboratory Management
- Technical Writing
- Phase I Assessments

Years of Experience

- 16

Education

- M.A., Archaeology, University of Durham, 2014
- B.A., Anthropology, California State University, Fresno, 2009

Registrations/Certifications

- Registered Professional Archaeologist 41591505

Professional Affiliations

- Coalition for Diversity in California Archaeology
- Society for American Archaeology
- Society for California Archaeology
- Society of Black Archaeologists

Professional Experience

2019 –Present Principal Investigator, Taylored Archaeology, Fresno, California

2018 – 2019 Staff Archaeologist, Applied EarthWorks, Inc., Fresno, California

2016 – 2018 Principal Investigator, Soar Environmental Consulting, Inc., Fresno, California

2015 Archivist/Database Technician, Development and Conservation Management, Inc., Laguna Beach, California

2013 Laboratory Research Assistant, Durham University Archaeology Department and Archaeology Museum, Durham, England, UK

2011 – 2012 Laboratory Technician, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, Pennsylvania

2008 – 2009 Laboratory Technician, California State University, Fresno

2008 Field School, California State University, Fresno

Technical Qualifications

Ms. Sauls meets the Secretary of the Interior's Professional Qualification Standards as an archaeologist. She has conducted pedestrian surveys, supervised Extended Phase I survey, authored technical reports, and completed the Section 106 process with the State Historic Preservation Officer and Tribal Historic Preservation Officer. Her experience includes data recovery excavation at Western Mono sites and processing recovered artifacts in the laboratory as well as conducting archival research about prehistory and ethnography of Central California. Ms. Sauls has authored and contributed to technical and letter reports in compliance with of the National Historical Preservation Act (NHPA) Section 106 and the California Environmental Quality Act (CEQA). She also has supported NHPA tribal consultation and responded to Assembly Bill 52 tribal comments. Ms. Sauls also has an extensive background supervising laboratory processing, cataloging, and conservation of prehistoric and historical archaeological collections. In addition, she worked with the Rock Art Heritage Group in the management, preservation, and presentation of rock art in museums throughout England, including a thorough analysis of the British Museum's rock art collections. At Durham University Archaeology Museum, Ms. Sauls processed the excavated skeletal remains of 30 individuals from the seventeenth century.

APPENDIX B

Records Search Results

California Historical Resources Information System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

10/14/2024

Consuelo Sauls
Taylored Archaeology
6083 N. Figarden Drive, Suite 616
Fresno, CA 93722

Re: Copper Ridge Tentative Subdivision Map
Records Search File No.: 24-452

The Southern San Joaquin Valley Information Center received your record search request for the project area referenced above, located on Remnoy USGS 7.5' quad. The following reflects the results of the records search for the project area and the 0.5 mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ GIS data

Resources within project area:	None
Resources within 0.5 mile radius:	P-16-000105, 000106, 000107, 000108, 000109, 000110, 000111, 000112, 000113, 000114, 000115, 000116, 000246
Reports within project area:	KI-00103, 00238, 00269
Reports within 0.5 mile radius:	KI-00093, 00100, 00268

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☒ enclosed	☐ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☒ enclosed	☐ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☐ not requested	☒ nothing listed

Caltrans Bridge Survey: Not available at SSJVIC; please see https://dot.ca.gov/programs/environmental-analysis/cultural-studies/california-historical-bridges-tunnels

Ethnographic Information: Not available at SSJVIC

Historical Literature: Not available at SSJVIC

Historical Maps: Not available at SSJVIC; please see http://historicalmaps.arcgis.com/usgs/

Local Inventories: Not available at SSJVIC

GLO and/or Rancho Plat Maps: Not available at SSJVIC; please see http://www.glorecords.blm.gov/search/default.aspx#searchTabIndex=0&searchByTypeIndex=1 and/or http://www.oac.cdlib.org/view?docId=hb8489p15p;developer=local;style=oac4;doc.view=items

Shipwreck Inventory: Not available at SSJVIC; please see https://www.slc.ca.gov/shipwrecks/

Soil Survey Maps: Not available at SSJVIC; please see http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

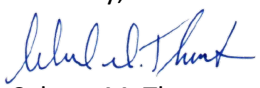
The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,



Celeste M. Thomson
Coordinator

APPENDIX C

Native American Outreach

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710

October 10, 2024

Consuelo Sauls
Taylored Archaeology

Via Email to: csaulsarchaeo@gmail.com

Re: Copper Ridge Tentative Subdivision Map Project, Kings County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Mathew.Lin@nahc.ca.gov

Sincerely,

Mathew Lin

Mathew Lin
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Kings County
10/10/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Kings	Kitanemuk & Yowlumne Tejon Indians	N	Delia Dominguez, Chairperson	115 Radio Street Bakersfield, CA, 93305	(626) 339-6785		2deedominguez@gmail.com	Kitanemuk Southern Valley Yokut	Fresno,Kern,Kings,Los Angeles,Madera,Monterey, San Benito,San Luis Obispo,Tulare	
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Samantha McCarty, Cultural Specialist II	P.O. Box 8 Lemoore, CA, 93245	(559) 633-3440		smccarty@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced, Monterey,San Benito,San Luis Obispo,Tulare	10/3/2023
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Shana Powers, THPO	P.O. Box 8 Lemoore, CA, 93245	(559) 423-3900		spowers@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced, Monterey,San Benito,San Luis Obispo,Tulare	10/3/2023
	Santa Rosa Rancheria Tachi Yokut Tribe	F	Nichole Escalon, Cultural Specialist I	P.O. Box 8 Lemoore, CA, 93245	(559) 924-1278		nescalone@tachi-yokut-nsn.gov	Southern Valley Yokut	Fresno,Kern,Kings,Merced, Monterey,San Benito,San Luis Obispo,Tulare	10/3/2023
	Table Mountain Rancheria	F	Bob Pennell, Cultural Resource Director	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	(559) 325-0394	rpennell@tmr.org	Yokut	Fresno,Kern,Kings,Madera ,Monterey,San Benito,San Luis Obispo,Tulare	
	Table Mountain Rancheria	F	Michelle Heredia-Cordova, Chairperson	P.O. Box 410 Friant, CA, 93626	(559) 822-2587	(559) 822-2693	mhcordova@tmr.org	Yokut	Fresno,Kern,Kings,Madera ,Monterey,San Benito,San	12/21/2023

Native American Heritage Commission
Native American Contact List
Kings County
10/10/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
	Tule River Indian Tribe	F	Joey Garfield, Tribal Archaeologist	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	joey.garfield@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne	7/22/2016
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tuleriv ertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Ki	7/22/2016
	Tule River Indian Tribe	F	Neil Peyron, Chairperson	P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tuleri vertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Ki	

Native American Heritage Commission
Native American Contact List
Kings County
10/10/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson	1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com	Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne	6/19/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Copper Ridge Tentative Subdivision Map Project, Kings County.

Record: PROJ-2024-005277
Report Type: List of Tribes
Counties: Kings
NAHC Group: All

Native American Outreach Log

Copper Ridge Tentative Subdivision Map Project, Kings County, California

Organization	Name	Position	Address	Phone Number	Email Address	Letter	E-Mail	Summary of Contact
Native American Heritage Commission	Mathew Lin	Culutral Resources Analyst	1550 Harbor Boulevard Suite 100 West Sacramento, California 95691	(916) 373-3710	nahc@nahc.ca.gov		10/4/2024	In a letter dated October 10, 2024, the NAHC stated that the results of the SLF results were negative and suggested to contact the local Native American representatives on the list provided.
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez	Chairperson	115 Radio Street Bakersfield, CA 93305	(626) 339-6785	2deedominguez@gmail.com	10/28/2024	11/7/2024	No response.
Santa Rosa Rancheria Tachi Yokut Tribe	Shana Powers	THPO	P.O. Box 8 Lemoore, CA 93245	(559) 423-3900	spowers@tachi-yokut-nsn.gov	N/A	N/A	No longer with Santa Rosa Rancheria Tachi Yokut Tribe.
Santa Rosa Rancheria Tachi Yokut Tribe	Nichole Escalon	THPO	P.O. Box 8 Lemoore, CA 93245	(559) 423-3900	nescalone@tachi-yokut-nsn.gov	10/28/2024	11/7/2024	No response.
Santa Rosa Rancheria Tachi Yokut Tribe	Samantha McCarty	Cultural Specialist II	P.O. Box 8 Lemoore, CA 93245	(559) 633-3440	smccarty@tachi-yokut-nsn.gov	10/28/2024	11/7/2024	Samantha McCarty responded on November 1, 2024, requesting results from CHRIS records search, SLF results, Curation Agreement, Burial Treatment Plan, Cultural Presentation for all staff and crew that may join mid project, have a tribal monitor and an archaeologist on site for all ground disturbance.
Table Mountain Rancheria	Michelle Heredia-Cordova	Chairperson	P.O. Box 410 Friant, CA 93626	(559) 822-2587	mhcordova@tmr.org	10/28/2024	11/7/2024	No response.
Table Mountain Rancheria	Bob Pennell	Cultural Resource Direc	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	rpennell@tmr.org	10/28/2024	11/7/2024	No response.
Tule River Indian Tribe	Kerri Vera	Environmental Department Director	P.O. Box 589 Porterville, CA 93258	(559) 783-8892	kerri.vera@tulerivertribe-nsn.gov	10/28/2024	11/7/2024	No response.
Tule River Indian Tribe	Joey Garfield	Tribal Archaeologist	P.O. Box 589 Porterville, CA 93258	(559) 783-8892	joey.garfield@tulerivertribe-nsn.gov	10/28/2024	11/7/2024	No response.
Tule River Indian Tribe	Neil Peyron	Chairperson	P.O. Box 589 Porterville, CA 93258	(559) 781-4271	neil.peyron@tulrivertribe-nsn.gov	10/28/2024	11/7/2024	No response.
Wuksache Indian Tribe/Eshom Valley Band	Kenneth Woodrow	Chairperson	1179 Rock Haven Ct. Salinas, CA 93906	(831) 443-9702	kwood8934@aol.com	10/28/2024	11/7/2024	No response.

Taylored Archaeology

EXAMPLE

October 28, 2024

Nichole Escalon, Tribal Historic Preservation Officer
Samantha McCarty, Cultural Specialist II
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, CA 93245

RE: Copper Ridge Tentative Subdivision Map Project, Kings County, California

Dear Nichole Escalon and Samantha McCarty,

Taylored Archaeology, under contract to N & M Capital, LLC, is providing cultural resource services for the proposed Copper Ridge Tentative Subdivision Map Project (project) in Kings County, California. The project proposes to construct a single-family development on approximately 83 acres of agricultural land. This project is subject to the California Environmental Quality Act (CEQA). The project site is on the northeast corner of 9 ¼ Avenue and Grangeville Boulevard, north of State Route 198 and east of the city of Hanford. The APE is in Section 19, Township 18 South, Range 22 East, Mount Diablo Meridian of the Remnoy, California 7.5-minute USGS quadrangle (see attached maps).

A search of the Native American Heritage Commission's (NAHC) Sacred Lands File did not indicate the presence of tribal or cultural resources in the immediate project area. Taylored Archaeology also requested a records search of the APE at the California Historic Resources Information System (CHRIS), Southern San Joaquin Valley Information Center (SSJVIC) located at the California State University, Bakersfield. The records search results indicated that there are no previously recorded cultural resources within the project boundary and 13 historic-era resources within a 0.5-mile radius. The SSJVIC identified three previously completed cultural reports in the project area, and three within the surrounding 0.5-mile radius. On October 19, 2024, Taylored Archaeology completed an intensive pedestrian survey within the project boundary to identify and record cultural resources present at the ground surface level. No cultural resources were identified during the archaeological pedestrian survey.

The NAHC provided your name and address as someone who may have interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the project area. Please note this outreach letter is research for a cultural resources investigation and is not government-to-government consultation under Assembly Bill 52. Taylored Archaeology understands and takes measures to protect the confidentiality of archaeological site locations, cemeteries, or sacred places, as required by law. Taylored Archaeology will not disclose locational information in any document available to the general public.

6083 N Figarden Dr., Ste. 616, Fresno, CA 93722
559.797.1572 / csaulsarchaeo@gmail.com

Taylored Archaeology

If you have information that you would like to share, have questions, or would like more information about the project, please contact me by email at csaulsarchaeo@gmail.com, or send a letter to my attention at 6083 N. Figarden Dr., Ste. 616, Fresno, CA 93722. Any response by November 11, 2024, would be greatly appreciated.

Sincerely,

Consuelo Y. Sauls, M.A., RPA # 41591505
Archaeologist

Gmail **Consuelo Sauls <csaulsarchaeo@gmail.com>**

Native American Outreach - Copper Ridge Tentative Subdivision Map Project, Kings County

5 messages

Consuelo Sauls <csaulsarchaeo@gmail.com> Mon, Oct 28, 2024 at 8:21 AM
To: Nichole Escalon <nescalon@tachi-yokut-nsn.gov>, Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>

Dear Nichole Escalon and Samantha McCarty,

Please find attached a letter and maps addressed to the Santa Rosa Rancheria Tachi Yokut Tribe for Native American outreach regarding the Copper Ridge Tentative Subdivision Map Project in Kings County.

The NAHC provided your name and address as someone who may have interest in sharing information regarding sacred sites, tribal cultural resources, or other resources of importance in the project area. Taylored Archaeology is conducting this outreach for research as part of the cultural resources investigation. Your response is greatly appreciated.

Respectively,

Consuelo Sauls

--
Consuelo Sauls, M.A., RPA 41591505
Archaeologist
Taylored Archaeology
6083 N. Figarden Dr., Ste. 616
Fresno, CA 93722
csaulsarchaeo@gmail.com
559.797.1572

3 attachments

Copper Ridge Aerial Map.jpg
343K

Copper Ridge TSM Topo.pdf
1225K

Nichole Escalon Outreach Letter- Copper Ridge TSM Project.pdf
115K

Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov> Tue, Oct 29, 2024 at 8:27 AM
To: Consuelo Sauls <csaulsarchaeo@gmail.com>, Nichole Escalon <nescalon@tachi-yokut-nsn.gov>

Good Morning Consuelo,

Thank you for contacting us regarding this project. The Tribe has major concerns regarding this project due to Tribal knowledge and the history of the area.

We recognize that this is not government-to-government consultation and because of that we are requesting the name and contact information of the lead agency and the lead person's contact information. We would like to include them in our official response that will address all of our concerns and requests.

If you have any questions, comments, and or concerns, please do not hesitate to contact Nichole or I. Thank you.

Samantha McCarty
Santa Rosa Rancheria Tachi-Yokut Tribe
Cultural Specialist II
SMcCarty@tachi-yokut-nsn.gov
Cell: (559) 633-6640
Direct Line: (559) 925-2591
Office: (559) 924-1278 x 4091

***PLEASE KEEP ALL CULTURAL STAFF IN EMAILS UNLESS STATED OTHERWISE**

From: Consuelo Sauls <csaulsarchaeo@gmail.com>
Sent: Monday, October 28, 2024 8:21 AM
To: Nichole Escalon <nescalon@tachi-yokut-nsn.gov>; Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>
Subject: Native American Outreach - Copper Ridge Tentative Subdivision Map Project, Kings County

[Quoted text hidden]

Consuelo Sauls <csaulsarchaeo@gmail.com> Tue, Oct 29, 2024 at 11:35 AM
To: Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>, Nichole Escalon <nescalon@tachi-yokut-nsn.gov>

Hi Samantha,

Thank you for your response. The project is in an extremely early research/ due diligence phase and there is no formal CEQA lead agency yet. The CEQA consultant, Darlene Mata at DR Mata Consulting, told me she can reach out to you this afternoon by phone to let you know more regarding the project. Darlene did say that the project will propose to annex the property into the city of Hanford and anticipates the city will be the lead agency. Thank you.

Consuelo Sauls
[Quoted text hidden]

Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov> Fri, Nov 1, 2024 at 11:38 AM
To: Consuelo Sauls <csaulsarchaeo@gmail.com>, Nichole Escalon <nescalon@tachi-yokut-nsn.gov>, "darlene@drmataconsulting.com" <darlene@drmataconsulting.com>

Good Morning Consuelo,

I just spoke with Darlene and I've added her to this email.

The Tribe is requesting the following:

- The results of the Archaeological Record Search to be shared with us
- The SLF search results shared with us.
- To have a Curation Agreement in place prior to any work beginning
- To have a Burial Treatment Plan in place prior to any work beginning
- To be retained for a Cultural Presentation for all staff and crew prior to any work beginning and for any new staff/crew that may join mid project
- To have a tribal monitor on site for all ground disturbance related to the project
- To have an archaeologist on site for all ground disturbance related to the project

Please let me know if you have any questions, comments, and or concerns. Thank you.

Sincerely,

Samantha McCarty
Santa Rosa Rancheria Tachi-Yokut Tribe
Cultural Specialist II
SMcCarty@tachi-yokut-nsn.gov
Cell: (559) 633-6640
Direct Line: (559) 925-2591
Office: (559) 924-1278 x 4091

***PLEASE KEEP ALL CULTURAL STAFF IN EMAILS UNLESS STATED OTHERWISE**

From: Consuelo Sauls <csaulsarchaeo@gmail.com>
Sent: Tuesday, October 29, 2024 11:35 AM
To: Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>; Nichole Escalon <nescalon@tachi-yokut-nsn.gov>
Subject: Re: Native American Outreach - Copper Ridge Tentative Subdivision Map Project, Kings County

[Quoted text hidden]

Consuelo Sauls <csaulsarchaeo@gmail.com> Tue, Nov 5, 2024 at 11:00 AM
To: Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>
Cc: Nichole Escalon <nescalon@tachi-yokut-nsn.gov>, "darlene@drmataconsulting.com" <darlene@drmataconsulting.com>

Hi Samantha,

Thank you for your response, I will incorporate this information into my report. Attached are the SLF letter and the CHRIS Records Search letter. Please note all cultural records listed in the CHRIS letter are historic-era resources. Regarding copies of records and reports, I have been instructed by the Southern San Joaquin Valley Information Center that tribes requesting copies to reach out to SSJVIC directly. You can contact them at ssjvic@csub.edu. For your reference, the SSJVIC records search file number for this project is: 24-452. Thank you.

Sincerely,
Consuelo Sauls
[Quoted text hidden]

---

2 attachments

SLF No Copper Ridge Tentative Subdivision Map Project 10.10.2024.pdf
359K

24-452 Results Letter.pdf
428K

Appendix E

Phase 1

Prepared For

N & M CAPITAL LLC
1878 NORTH MOONEY BOULEVARD, SUITE J
TULARE, CALIFORNIA 93274

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

PROPOSED DEVELOPMENT APNs 014-143-069 & 014-143-078 GRANGEVILLE BOULEVARD & 9 1/4 AVENUE HANFORD, CALIFORNIA

Date Issued: August 8, 2024
Project Number 24-89

Prepared By

PAUL HUMPHREY, EP
7402 EAST CLINTON AVENUE
FRESNO, CALIFORNIA 93737
TEL (559) 592-3555

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EXECUTIVE SUMMARY

Paul Humphrey, EP has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations set forth by N & M Capital LLC for the property identified as Kings County Recorder's Office assessor's parcel numbers (APNs) 014-143-069 & 014-143-078, Hanford, California (the "Subject Property").

The Phase I Environmental Site Assessment is designed to provide N & M Capital LLC with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the Subject Property. This assessment was conducted utilizing generally accepted ESA industry standards in accordance with ASTM E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).

The Subject Property includes two parcels of land totaling approximately 83.94± acres located at the northeast corner of Grangeville Boulevard and 9 1/4 Avenue in Hanford, California. The Subject Property is identified as APNs 014-143-069 & 014-143-078 and has no assigned address. The Subject Property consists of agricultural land and includes one irrigation water well on the north northeast portion of the site along the north boundary. A pad-mounted utility-owned transformer is located next to the well. Electricity for the transformer of the well appears to be delivered via a buried pipeline along the north boundary which enters the Subject Property near the northwest corner of the site.

Based on available historical documentation, the Subject Property consisted of agricultural and range land with a small outbuilding from at least 1934 up to the mid 1950s, agricultural land with a small outbuilding in the 1960s, and entirely agricultural land since at least the mid-1970s.

The Subject Property is situated within a residential and agricultural area of Hanford, California. The Subject Property is bound to the north by a rural residence with outbuildings and agricultural land; to the east by agricultural land; to the southeast by a rural residence with outbuildings and a small vacant area; to the south by Grangeville Boulevard followed by a single-family residence and agricultural land; and to the west by 9 1/4 Avenue followed by single-family residences, a park, and an elementary school.

According to the Lines of Equal Elevation of Water in Wells Map, Spring 2018, from the Department of Water Resources, groundwater in the vicinity of the subject site was at a depth of approximately 90 to 100 feet below ground surface and flows to the southwest.

Paul Humphrey, EP obtained and reviewed a database report from Environmental Risk Information Services (ERIS) for the Property and the surrounding area. The Subject Property was not identified in the database. The ERIS database identified two RCRA NON GEN, one ENVIROSTOR, one SWF/LF, one CERS TANK, one LUR, one VCP, one DELISTED COUNTY, one CUPA, one ALT FUELS, one TOXIC PITS, and one HAZ GEN located within the prescribed search radii. Based on review of regulatory documentation, off-site location, and/or estimated direction of groundwater flow, these facilities do not represent an environmental condition or concern.

Conclusions

Paul Humphrey, EP has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-21 of the property identified as APNs 014-143-069 &

014-143-078, Hanford, California, the Subject Property. Any exceptions to or deletions from this practice are described in Section 1.4 of this report.

Recognized Environmental Conditions (RECs) are defined by the ASTM Standard Practice E1527-21 as: (1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. Paul Humphrey, EP's assessment has revealed the following RECs associated with the Subject Property or nearby properties:

- No on-site RECs were identified during the course of this assessment.

Controlled Recognized Environmental Conditions (CRECs) are defined by the ASTM Standard Practice E1527-21 as a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations). Paul Humphrey, EP's assessment has revealed the following CRECs associated with the Subject Property or nearby properties:

- No on-site CRECs were identified during the course of this assessment.

Historical Recognized Environmental Condition (HREC) is defined by the ASTM Standard Practice E1527-21 as a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). Paul Humphrey, EP's assessment has revealed the following HRECs associated with the Subject Property or nearby properties:

- No on-site HRECs were identified during the course of this assessment.

Business Environmental Risk (BER) is defined by the ASTM Standard Practice E1527-21 as a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of commercial real estate, not necessarily related to those environmental issues required to be investigated in this practice. BERs do not qualify as recognized environmental conditions, as defined by the ASTM Standard Practice E1527-21. Paul Humphrey, EP's investigation has revealed the following BERs associated with the Subject Property or nearby properties:

- The Subject Property is currently and was historically used for agricultural purposes. There is a potential that agricultural related chemicals such as pesticides, herbicides, and fertilizers, may have been used onsite. Based on Paul Humphrey, EP's experience, during previous site development activities, near surface soils (where residual agricultural chemical concentrations would have most likely been present, if at all) are likely generally mixed with fill material or disturbed during grading. Also, it is common that engineered fill material is placed over underlying soils as part of site development activities. These additional variables serve to further reduce the potential for exposure to residual agricultural chemicals (if any). Based on these reasons, Paul Humphrey, EP concludes that the possible use of agricultural chemicals is not expected to represent a significant environmental concern. If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency.

- The Subject Property included one irrigation water well on the north northeast portion of the site along the north boundary. If the well is not to be used, the well should be properly destroyed in accordance with State and local guidelines.

Non-ASTM Considerations may include the presence of environmental conditions such as asbestos containing materials, lead-based paint, radon, mold, lead in drinking water, etc. which can affect the liabilities and financial obligations of the client, the health & safety of site occupants, and the value and marketability of the subject property. Paul Humphrey, EP's assessment has revealed the following Non-ASTM considerations associated with the Subject Property:

- No Non-ASTM considerations were identified during the course of the investigation.

Recommendations

Based on the information available at the time of this assessment, Paul Humphrey, EP does not recommend further investigation of the Subject Property at this time.

1.0 INTRODUCTION

Paul Humphrey, EP was retained by N & M Capital LLC to conduct a Phase I Environmental Site Assessment (ESA) of the property identified as APNs 014-143-069 & 014-143-078, Hanford, California (Subject Property). The protocol used for this assessment is in general conformance with ASTM E1527-21, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).

On July 26, 2024, Paul Humphrey, EP conducted a site reconnaissance to assess the possible presence of petroleum products and hazardous substances at the Subject Property. Paul Humphrey, EP's investigation included a review of aerial photographs, a reconnaissance of adjacent properties, background research, and a review of available local, state, and federal regulatory records regarding the presence of petroleum products and/or hazardous substances at the Subject Property.

Paul Humphrey, EP contracted ERIS, to perform a computer database search for local, state, and Federal regulatory records pertaining to environmental concerns for the Subject Property and properties in the vicinity of the Subject Property (see Section 3.0).

1.1 Purpose

The purpose of this Phase I Environmental Site Assessment (ESA) was to identify Recognized Environmental Conditions (as defined by ASTM Standard E-1527-21) in connection with the Subject Property.

1.2 Detailed Scope of Services

The purpose of the Phase I Environmental Site Assessment is to assist the client in identifying potential environmental liabilities associated with the presence of any hazardous substances or petroleum products, their use, storage, and disposal at and in the vicinity of the subject property that may have occurred at the subject property. Property assessment activities focused on: 1) a review of federal, state, tribal and local databases that identify and describe underground fuel tank sites, leaking underground fuel tank sites, hazardous waste generation sites, and hazardous waste storage and disposal facility sites within the ASTM approximate minimum search distance; 2) a property and surrounding site reconnaissance, and interviews with the past and present owners and current occupants and operators to identify potential environmental contamination; and 3) a review of historical sources to help ascertain previous land use at the site and in the surrounding area.

The goal of Paul Humphrey, EP in conducting the Phase I Environmental Site Assessment was to identify *(I)* the presence of *hazardous sub- stances* or *petroleum products* in, on, or at the *subject property* due to a *release* to the *environment; (2)* the likely presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* or likely *release* to the *environment;* or *(3)* the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* under conditions that pose a *material threat* of a future *release* to the *environment*.

No other warranties are implied or expressed.

1.3 Significant Assumptions

There is a possibility that even with the proper application of these methodologies there may exist on the Subject Property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Paul Humphrey, EP believes that the information obtained from the record review and the interviews concerning the site is reliable. However, Paul Humphrey, EP cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The methodologies of this assessment are not intended to produce all inclusive or comprehensive results, but rather to provide N & M Capital LLC with information relating to the Subject Property.

1.4 Limitations and Exceptions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM 1527-21. Specific limitations and exceptions to this ESA are more specifically set forth below:

- A Phase I ESA interview with the current or previous owner of the Subject Property was not reasonably ascertainable. Consequently, information regarding the history and historical uses of the Subject Property obtained from an interview of the previous owner constitutes a data gap. Taken in consideration with the available information obtained in the course of preparing this report in conjunction with professional experience, there is no evidence to suggest that this data gap might alter the conclusions of this assessment.

1.5 Special Terms and Conditions

The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the client. No subsurface exploratory drilling or sampling was done under the scope of this work. Unless specifically stated otherwise in the report, no chemical analyses have been performed during the course of this ESA.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

1.6 Use Reliance

All reports, both verbal and written, are for the benefit of N & M Capital LLC. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of Paul Humphrey, EP.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description

The Subject Property is located at the northeast corner of Grangeville Boulevard and 9 1/4 Avenue in Hanford, California. The Subject Property is identified as Kings County Recorder's Office APNs 014-143-069 & 014-143-078.

2.2 Site and Vicinity General Characteristics

The Subject Property is located in a residential and agricultural area consisting of single-family residences, a park, school, and agricultural land.

2.3 Current Use of the Subject Property

The Subject Property consists of agricultural land.

2.4 Description of Site Improvements

The Subject Property includes two parcels of land totaling approximately 83.94± acres. The Subject Property consists of agricultural land and includes one irrigation water well on the north northeast portion of the site along the north boundary. A pad-mounted utility-owned transformer is located next to the well. Electricity for the transformer of the well appears to be delivered via a buried pipeline along the north boundary which enters the Subject Property near the northwest corner of the site.

2.5 Current Use of Adjoining Properties

During the vicinity reconnaissance, Paul Humphrey, EP observed the following land use on properties in the immediate vicinity of the Subject Property.

North:	Rural residence with outbuildings and agricultural land
East:	Agricultural land
Southeast:	Rural residence with outbuildings and a small vacant area
South:	Grangeville Boulevard followed by a single-family residence and agricultural land
West:	9 1/4 Avenue followed by single-family residences, a park, and an elementary school

3.0 USER PROVIDED INFORMATION

Pursuant to ASTM E1527-21, Paul Humphrey, EP requested the following site information from N & M Capital LLC (User of this report).

3.1 Title Records

Paul Humphrey, EP requested title records from the User; however, a 50-year chain of title was not available at the Subject Property and was not provided for review.

3.2 Environmental Liens or Activity and Use Limitation

Paul Humphrey, EP requested information from the User regarding knowledge of environmental liens, activity and use limitations for the Subject Property. The User had no knowledge of any environmental liens or use or activity limitations.

3.3 Specialized Knowledge

Paul Humphrey, EP inquired with the User regarding any specialized knowledge of environmental conditions associated with the Subject Property. The User was not aware of any environmental conditions associated with the Subject Property.

3.4 Commonly Known or Reasonably Ascertainable Information

Paul Humphrey, EP inquired with the User regarding any commonly known or *reasonably ascertainable* information within the local community about the Subject Property that is material to *recognized environmental conditions* in connection with the Subject Property. The User had no reasonably ascertainable information within the local community about the Subject Property that is material to recognized environmental conditions in connection with the Subject Property.

3.5 Valuation Reduction for Environmental Issues

Paul Humphrey, EP inquired with the User regarding any knowledge of reductions in property value due to environmental issues. The User was not aware of any valuation reductions associated with the Subject Property.

3.6 Owner, Property Manager, and Occupant Information

The following information regarding the Owner, Subject Property Manager and Occupants was provided by the User and Key Site Manager.

Subject Property Owner:	Warmerdam Family Trust, Dadigian Family Trust
Subject Property Manager:	Eddie Warmerdam
Occupants:	None

3.7 Reason for Performing Phase I ESA

The purpose of this ESA was to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E-1527-21) in connection with the Subject Property. This ESA was also performed to permit the *User* to satisfy one of the requirements to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E-1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

4.0 RECORDS REVIEW

4.1 Standard Environmental Record Sources

Information from standard Federal and state environmental record sources was provided through ERIS. Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. This integrated database also contains postal service data in order to enhance address matching. Records from one government source are compared to records from another to clarify any address ambiguities. The demographic and geographic information available provides assistance in identifying and managing risk. The accuracy of the geocoded locations is approximately +/-300 feet.

In some cases, location information supplied by the regulatory agencies is insufficient to allow the database companies to geocode facility locations. These facilities are listed under the unmappables ("orphan sites") section within the ERIS report. A review of the unmappable facilities indicated that none of these facilities are within the ASTM minimum search distance from the Subject Property.

Regulatory information from the database sources regarding possible recognized environmental conditions, within the ASTM minimum search distance from the Subject Property, was reviewed. Specific facilities are discussed below the Table if determined likely that a potential recognized environmental condition has resulted at the Subject Property from the listed facilities. Please refer to Appendix C for a complete listing.

Database	Search Distance (Miles)	Subject Property Listed	Total Number of Listings	Potential Environmental Concern to the Subject Property
NPL, PROPOSED NPL	1	No	0	
DELISTED NPL	0.5	No	0	
SEMS, SEMS ARCHIVE	0.5	No	0	
CERCLIS, CERCLIS NFRAP, CERCLIS LIENS	0.5	No	0	
RCRA CORRACTS	1	No	0	
RCRA-TSD	0.5	No	0	
RCRA LQG, SQG, CESQGs, VGN, NLR, NON GEN	0.25	No	2	No
FED ENG, FED INST	TP	No	0	
ERNS	TP	No	0	
FED BROWNFIELDS	0.5	No	0	
STATE/TRIBAL HWS (includes RESPONSE, Envirostor, DELISTED ENVS)	1	No	1	No

Database	Search Distance (Miles)	Subject Property Listed	Total Number of Listings	Potential Environmental Concern to the Subject Property
SWF/LF	0.5	No	1	No
HWP	1	No	0	
LDS	0.5	No	0	
LUST, DELISTED LST	0.5	No	0	
UST, UST SWEEPS	0.25	No	0	
UST CLOSURE	0.5	No	0	
HHSS, AST, DELISTED TNK, CERS TANK	0.25	No	1	No
DELISTED HAZ, LUR, HLUR, DEED, VCP	0.5	No	2	No
CLEANUP SITES, DELISTED CLEANUP	0.5	No	0	
CERS HAZ	0.125	No	0	
DELISTED CTNK, HIST TANK	0.25	No	0	
TRIBAL LISTINGS	0.25-0.5	No	0	
DELISTED COUNTY, CUPA	0.25	No	2	No
EMISSIONS	0.25	No	0	
Additional State & Federal Listings	PO-1	No	3	No

The Subject Property was not identified in the database. The ERIS database identified two RCRA NON GEN, one ENVIROSTOR, one SWF/LF, one CERS TANK, one LUR, one VCP, one DELISTED COUNTY, one CUPA, one ALT FUELS, one TOXIC PITS, and one HAZ GEN located within the prescribed search radii. Based on review of regulatory documentation, off-site location, and/or estimated direction of groundwater flow, these facilities do not represent an environmental condition or concern.

4.2 Additional Environmental Record Sources

4.2.1 County Recorder/ Assessor

According to the Kings County Recorder's Office, no environmentally related liens or deed restrictions have been recorded against the Subject Property.

4.2.2 Fire Officials

Records from the City of Hanford Fire Department were reviewed for evidence indicating the presence of underground storage tanks and for the use of hazardous substances. No record was found for the Subject Property.

4.2.3 Building Department

Records from the City of Hanford Building and Planning Department were reviewed for evidence indicating the developmental history of the Subject Property, and for the presence of documentation relative to underground storage tanks. No records indicative of the current or past presence of USTs were noted.

4.2.4 Other Agencies

Paul Humphrey, EP's July 26, 2024, review of SWRCB Geotracker records of the leaking underground fuel tank (LUFT) database indicated that no record of LUFTs are on file with the RWQCB for the Subject Property.

Paul Humphrey, EP's July 26, 2024, review of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) Envirostor California cleanup sites database available via the DTSC Internet Website indicated that no records of cleanup sites are on file with the DTSC for the Subject Property.

4.3 Physical Setting Sources

4.3.1 Topography

The USGS, Remnoy, California Quadrangle 7.5 minute series topographic map was reviewed for this ESA. The Remnoy, California Quadrangle map was published by the USGS in 1954. According to the contour lines on the topographic map, the elevation of the Subject Property is approximately 250 feet above mean sea level (MSL). The contour lines in the area of the Subject Property indicate the area is sloping gently to the west southwest. The Subject Property is depicted as having no structures or improvements.

4.3.2 Soils/Geology

The Subject Property is located within the Great Valley geomorphic province, a long structural trough situated between the Sierra Nevada Mountains to the east, the Coast Range Mountains to the west and Tehachapi Mountains to the south. In the Hanford area, the sediments consist of recent and older alluvium derived primarily from the Sierra Nevada Mountains. Older (Pleistocene) alluvium unconformably overlies Pliocene-Pleistocene continental and marine deposits. The valley basement, consisting of pre-Tertiary granitic and metamorphic rocks, underlies the clastic section at a depth in excess of 2,000 feet below ground surface. Shallow soil stratigraphy in the Kings County area is primarily sandy soils and sand-silt combination soils.

4.3.3 Hydrology

The site is located in the San Joaquin Valley groundwater basin, which is part of the San Joaquin Basin Hydrologic Study Area (HSA). Twenty-six ground-water basins and areas of

potential groundwater storage have been identified in the San Joaquin Basin HSA. The HSA is bounded by the Sacramento-San Joaquin Delta to the north, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coastal Ranges to the west. Groundwater in the vicinity of the site is found within the Central Valley regional aquifer system, an unconfined to semi-confined aquifer system within the older alluvium and deeper continental deposits. According to the Lines of Equal Elevation of Water in Wells Map, Spring 2018, from the Department of Water Resources, groundwater in the vicinity of the subject site was at a depth of approximately 90 to 100 feet below ground surface and flows to the southwest.

No settling ponds, surface impoundments, wetlands or natural catchbasins were observed at the Subject Property during this investigation.

4.3.4 Flood Zone Information

A review of the Flood Insurance Rate Maps, published by the Federal Emergency Management Agency, was performed. According to Panel Number 06031C0205C, dated June 16, 2009, the Subject Property is located in Flood Zone .

4.3.5 Oil and Gas Exploration

The on-site reconnaissance addressed oil and gas exploration at the Subject Property. According to the California Department of Conservation Geologic Energy Management, no operating or abandoned oil or gas wells are on or adjacent to the Subject Property.

4.3.6 Vapor Encroachment

A Tier 1 Vapor Encroachment Screen (VES) pursuant to ASTM E2600-10 was performed as part of this assessment to determine whether a potential *vapor encroachment condition* (VEC) exists at the Subject Property. The VES included the review of reasonably ascertainable information for the Subject Property and nearby properties. During the course of this assessment, a reasonable probability was not identified to indicate that a VEC exists at the Subject Property.

4.4 Historical Use Information: Subject Property and Adjoining Properties

Based on available historical documentation, the Subject Property consisted of agricultural and range land with a small outbuilding from at least 1934 up to the mid 1950s, agricultural land with a small outbuilding in the 1960s, and entirely agricultural land since at least the mid-1970s.

The adjoining properties consisted of agricultural land, range land, and a rural residence with outbuildings by 1934, with increasing use as agricultural land and rural residences by the mid-1950s. Single-family residential use of a portion of the west adjoining property began by the mid-2000s and development of a park and school by 2009 and 2010.

4.4.1 Aerial Photographs

Available aerial photographs dated 1934, 1942, 1950, 1954, 1967, 1974, 1984, 1986, 1994, 2003, 2004, 2005, 2006, 2009, 2010, 2012, 2014, 2016, 2018, 2020, and 2021, from ERIS were reviewed for this ESA. Copies of selected photographs are included in Appendix B-1 of this report. The photographs are discussed below:

Date:	1934
Scale:	1” = 500’
Photo ID:	Fairfield
Description:	This photograph depicts the Subject Property as mostly agricultural land with a small area of range land on the northeast portion of the site. An outbuilding or possible barn is located on the southeast area of the site and appears to be associated with the southeast adjoining rural residence. The north adjoining property appears as range land. The east adjoining property appears as agricultural and range land. The south adjoining property appears as a roadway followed by range land. The west adjoining property appears as agricultural and range land.

Date:	1942
Scale:	1” = 500’
Photo ID:	ASCS
Description:	This photograph depicts the Subject Property and the east, southeast, south, and west adjoining properties as in the 1934 photograph. The north adjoining property appears as a roadway followed by agricultural and range land.

Date:	1950
Scale:	1” = 500’
Photo ID:	ASCS
Description:	This photograph depicts the Subject Property similar to the 1942 photograph. A possible corral is present on the central southeast area of the site. The east, southeast, south, and west adjoining property appears as in the 1942 photograph. The north adjoining property appears as agricultural land.

Date:	1954
Scale:	1” = 500’
Photo ID:	AMS
Description:	This photograph depicts the Subject Property and the adjoining properties as in the 1954 photograph.

Date:	1967
Scale:	1” = 500’
Photo ID:	ASCS
Description:	This photograph depicts the Subject Property as agricultural land with an outbuilding or possible barn located on the southeast area of the site which appears to be associated with the southeast adjoining rural residence. The north adjoining property appears as agricultural land with a rural residence. The east and west adjoining property appears as agricultural land. The south adjoining property appears as a roadway followed by agricultural land and a rural residence.

Date: 1974
Scale: 1” = 500’
Photo ID: USGS
Description: This photograph depicts the Subject Property and the adjoining properties as in the 1967 photograph.

Date: 1984
Scale: 1” = 500’
Photo ID: USGS
Description: This photograph depicts the Subject Property as agricultural land. The adjoining properties appear as in the 1974 photograph.

Date: 1986
Scale: 1” = 500’
Photo ID: USGS
Description: This photograph depicts the Subject Property and adjoining properties as in the 1984 photograph.

Date: 1994
Scale: 1” = 500’
Photo ID: USGS
Description: This photograph depicts the Subject Property as agricultural land. The north adjoining property appears as agricultural land and a rural residence with outbuildings. The east and west adjoining properties appear as agricultural land. The southeast adjoining property appears as a rural residence with outbuildings. The south adjoining property appears as a roadway followed by agricultural land and a rural residence.

Date: 2003, 2004, 2005,
Scale: 1” = 500’
Photo ID: USDA
Description: These photographs depict the Subject Property Subject Property and the adjoining properties as in the 1994 photograph.

Date: 2006
Scale: 1” = 500’
Photo ID: USDA
Description: This photograph depicts the Subject Property and the north, east, southeast, and south adjoining properties as in the 2003, 2004, and 2005 photographs. The west adjoining property appears as a roadway followed by vacant land with some areas graded for development.

Date: 2009, 2010, 2012, 2014, 2016
Scale: 1” = 500’
Photo ID: USDA

Description:	These photographs depict the Subject Property and the north, east, southeast, and south adjoining properties as in the 2006 photograph. The west adjoining property appears as a roadway followed by vacant land, a park, and school.
Date:	2018, 2020
Scale:	1" = 500'
Photo ID:	USDA
Description:	These photographs depict the Subject Property and the north, east, southeast, and south adjoining properties as in the 2009, 2010, 2012, 2014, and 2016 photographs. The west adjoining property appears as a roadway followed by residences, a park, and school.
Date:	2021
Scale:	1" = 500'
Photo ID:	MAXAR
Description:	This photograph depicts the Subject Property and adjoining properties a in the 2018 and 2020 photographs.

4.4.2 Fire Insurance Maps

Historical Sanborn Fire Insurance maps were reviewed online at http://www.spl.org/. Fire insurance maps, which commonly date back to the 1800s, are typically reviewed in order to evaluate whether past usage or construction on the Property or within the near vicinity is environmentally noteworthy. Fire insurance map coverage of the area of the Property was not identified.

4.4.3 City Directories

Historical City directories published by Haines were reviewed at the Fresno County Library in Fresno, California for past names and business that were listed for the Property. The findings are presented in the following table:

YEAR	ON-SITE
1982, 1992, 2001, 2015, 2019	No listing in likely address range of the Subject Property

4.4.4 Historical Topographic Maps

The review of historical topographic maps was not reviewed for this study. Historical use of the Subject Property was researched using other standard historical sources.

4.4.5 Additional Historical Record Sources

Additional historical record sources were not reviewed.

4.4.6 Prior Assessment Reports

No prior reports or relevant documentation in association with the Subject Property were made available to Paul Humphrey, EP during the course of this assessment.

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

The Subject Property was inspected by Paul Humphrey on July 26, 2024. The weather at the time of the site visit was clear and approximately 85 degrees.

5.2 General Site Setting

The Subject Property is located within residential and agricultural area located at the northeast corner of Grangeville Boulevard and 9 1/4 Avenue in Hanford, California.

5.3 Exterior Observations

5.3.1 Solid Waste Disposal

Solid waste is not generated on the Subject Property. No indication of potentially hazardous material disposal was noted during the site reconnaissance.

5.3.2 Surface Water Drainage

The Subject Property consists of agricultural land. Drainage appears sufficient as no areas of ponding or standing water were noted during the site visit.

5.3.3 Wells and Cisterns

The Subject Property included one irrigation water well on the north northeast portion of the site along the north boundary. If the well is not to be used, the well should be properly destroyed in accordance with State and local guidelines.

No aboveground evidence of cisterns was observed during the site reconnaissance.

5.3.4 Wastewater

No indications of industrial wastewater disposal or treatment facilities were observed during the onsite reconnaissance.

5.3.5 Additional Site Observations

A pad-mounted utility-owned transformer is located next to the irrigation well on the north northeast portion of the site along the north boundary. Electricity for the transformer of the well appears to be delivered via a buried pipeline along the north boundary which enters the Subject Property near the northwest corner of the site.

5.4 Interior Observations

The Subject Property had no buildings or structures.

5.5 Potential Environmental Conditions

5.5.1 Hazardous Substances and Petroleum Products Used or Stored at the Site

No evidence of the use of hazardous materials was observed on the Subject Property.

5.5.1.1 Unlabeled Containers and Drums

No unlabeled containers or drums were observed during the site reconnaissance.

5.5.1.2 Disposal Locations of Regulated/ Hazardous Waste

No obvious indications of hazardous waste disposal were observed on the Subject Property or were indicated during interviews.

5.5.2 Evidence of Releases

No obvious indications of hazardous material or petroleum product releases, such as stained areas or stressed vegetation, were observed during the site reconnaissance or reported during interviews.

5.5.3 Polychlorinated Biphenyls (PCBs)

Older transformers and other electrical equipment could contain polychlorinated biphenyls (PCBs) at a level that subjects them to regulation by the U.S. EPA. PCBs in electrical equipment are controlled by United States Environmental Protection Agency regulations 40 CFR, Part 761. Under the regulations, there are three categories into which electrical equipment can be classified:

- Less than 50 parts per million (PPM) of PCBs – "*Non-PCB" transformer*
- 50 ppm-500 ppm – "*PCB-Contaminated" electrical equipment*
- Greater than 500 ppm – "*PCB" transformer*

No potential PCB-containing equipment such as transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc., is present.

5.5.4 Landfills

No evidence of on-site landfilling was observed or reported during the site reconnaissance.

5.5.5 Pits, Ponds, Lagoons, Sumps, and Catch Basins

No evidence of on-site pits, ponds, lagoons, sumps or catch basins was observed or reported during the site reconnaissance.

5.5.6 On-Site ASTs and USTs

No evidence of ASTs or USTs was observed during the Subject Property reconnaissance or reported during interviews.

5.5.7 Radiological Hazards

No radiological substances or equipment were observed or reported stored on the subject site.

5.5.8 Drinking Water

Drinking water is not provided or supplied to the Subject Property.

5.5.9 Additional Hazard Observations

No additional hazards were observed on the site.

5.5.10 Asbestos-Containing Materials (ACM)

An evaluation of ACM was not included in the scope of services and was not conducted.

5.5.11 Radon

The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, Zone 1 being those areas with the average predicted indoor radon concentration in residential dwellings exceeding the EPA Action limit of 4.0 picoCuries per Liter (pCi/L). It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the EPA recommends site specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures. Review of the EPA Map of Radon Zones places the Subject Property in Zone 2, where average predicted radon levels are between 2.0 and 4.0 pCi/L.

5.5.12 Lead-Based Paint

An evaluation of lead-based paint was not included in the scope of services and was not conducted.

5.5.13 Mold Evaluation

A mold evaluation was not included in the scope of services and was not conducted.

6.0 INTERVIEWS

6.1 Interview with Owner

The representative of the owner of the Subject Property parcels was identified as Eddie Warmerdam. Mr. Warmerdam was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. Mr. Warmerdam indicated that his family has owned the north Subject Property since the late 1980s and have leased farmed the south Subject Property parcel most of that time and use has always been farmed land.

6.2 Interview with Site Manager

See Section 6.1 Above.

6.3 Interview with Occupants

The Subject Property is not occupied.

6.4 Interview with Local Government Officials

An interview was conducted with the Kings County Environmental Health Department (KCEHD). According to KCEHD staff, no records were identified for the Subject Property.

An interview was conducted with a clerk at the Hanford Planning and Development Department. According to the clerk, no records of environmental concern were identified for the Subject Property.

An interview was conducted with the City of Hanford Fire Department (CHFD). According to CHFD staff, no records were identified for the Subject Property.

6.5 Interview with Others

Additional interviews were not conducted.

7.0 FINDINGS AND CONCLUSIONS

7.1 Findings

7.1.1 On-Site Environmental Conditions

No on-site recognized environmental conditions were identified during the course of this assessment.

7.1.2 Off-Site Environmental Conditions

No off-site RECs were identified that were considered likely to impact the Subject Property.

7.1.3 Controlled Recognized Environmental Conditions

No on-site CRECs were identified during the course of this assessment.

7.1.4 Historical Recognized Environmental Conditions

No on-site HRECs were identified during the course of this assessment.

7.1.5 De Minimis Environmental Conditions

No *de minimis* environmental conditions were identified in connection with the Subject Property during the course of this assessment.

7.2 Opinion

Based on our professional opinion, no recognized environmental conditions in connection with the Subject Property were identified during the course of this assessment.

7.3 Conclusions

Paul Humphrey, EP has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-21 of the property identified as APNs 014-143-069 & 014-143-078, Hanford, California, the Subject Property. Any exceptions to or deletions from this practice are described in Section 1.4 of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the Property.

Paul Humphrey, EP's investigation has revealed the following BERs associated with the Subject Property or nearby properties:

- The Subject Property is currently and was historically used for agricultural purposes. There is a potential that agricultural related chemicals such as pesticides, herbicides, and fertilizers, may have been used onsite. Based on Paul Humphrey, EP's experience, during previous site development activities, near surface soils (where residual agricultural chemical concentrations would have most likely been present, if at all) are likely generally mixed with fill material or disturbed during grading. Also, it is common that

engineered fill material is placed over underlying soils as part of site development activities. These additional variables serve to further reduce the potential for exposure to residual agricultural chemicals (if any). Based on these reasons, Paul Humphrey, EP concludes that the possible use of agricultural chemicals is not expected to represent a significant environmental concern. If redevelopment activities for residential use are planned, it should be determined whether sampling relating to the former agricultural use is required by the local planning department or other applicable oversight agency.

- The Subject Property included one irrigation water well on the north northeast portion of the site along the north boundary. If the well is not to be used, the well should be properly destroyed in accordance with State and local guidelines.

7.4 Recommendations

Based on the information available at the time of this assessment, Paul Humphrey, EP does not recommend further investigation of the Subject Property at this time.

7.5 Deviations

This Phase I ESA substantially complies with the scope of services and ASTM 1527-21 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), as amended, except for exceptions and/or limiting conditions as discussed in Section 1.4.

8.0 REFERENCES

Reports, Plans, and Other Documents Reviewed:

American Society for Testing and Materials, *Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*, ASTM Designation: E2600

American Society for Testing and Materials, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation: E1527-13

American Society for Testing and Materials, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM Designation: E1527-21

ERIS, Aerial Photograph Report, NEC Grangeville Blvd and 9 1/4 Avenue, Hanford, California, Job number 24-89

ERIS, Radius Database Report, NEC Grangeville Blvd and 9 1/4 Avenue, Hanford, California, Job number 24-89

State of California Department of Conservation Geologic Energy Management web page, https://maps.conservation.ca.gov/oilgas/

State of California Department of Water Resources Division of Planning and Local Assistance, Groundwater Level Data Retrieval Map Interface web page, http://well.water.ca.gov/map/map.html

United States Department of Agriculture, Soil Conservation Service Soil Survey Kings County, California, 1986

US Environmental Protection Agency, Map of Radon Zones web page, http://www.epa.gov/iaq/radon/zonemap.html

US Environmental Protection Agency, Office of Water web page, http://www.epa.gov/ogwdw000/swp/ssa/ssahome.html

U.S. Geological Survey, Remnoy, California Topographic Quadrangle, 1954

Agencies Contacted:

City of Hanford Building and Planning Department

City of Hanford Fire Department

Kings County Assessor's Office

Kings County Department of Environmental Health

9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I have met the definition of *Environmental professional* as defined in §312.10 of 40 CFR 312" and have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Paul Humphrey, EP
Environmental Professional

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

10.1 Definition of an Environmental Professional

An Environmental Professional means: (1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened re- leases (see § 312.l(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §§ 312.20(e) and (t). (2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or (iii) have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience. (3) An environmental professional should remain cur- rent in his or her field through participation in continuing education or other activities. (4) The definition of environmental professional pro- vided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration Jaws to the activities to be undertaken as part of the inquiry identified in § 312.21(b). (5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

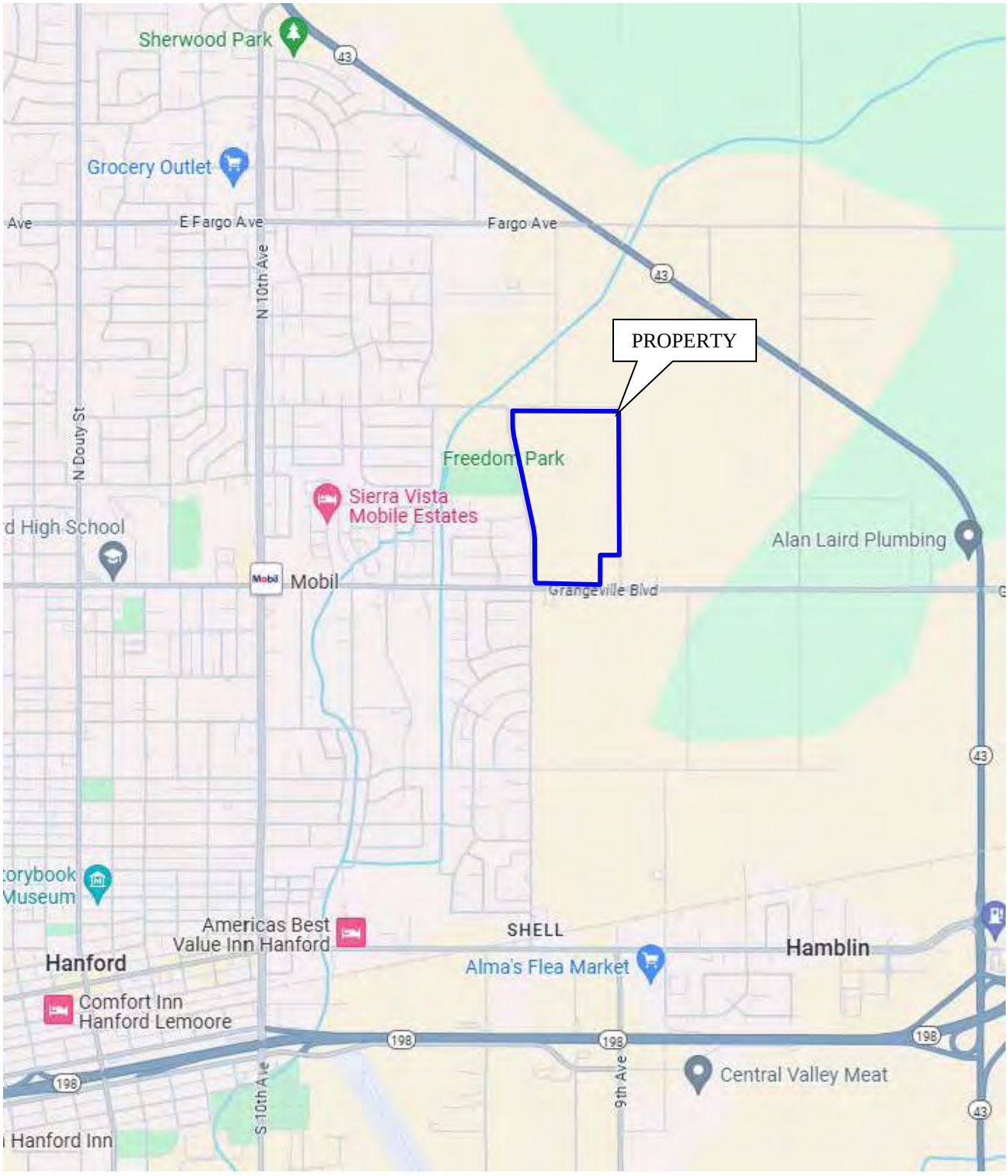
10.2 Relevant Experience

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate inquiries investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and sub- surface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (see § 312.l(c)) to the subject property.

Resumes for the Environmental Professionals involved in this project are included in Appendix G.

FIGURES

SITE LOCATION MAP
SITE PLAN
SITE TOPOGRAPHIC MAP



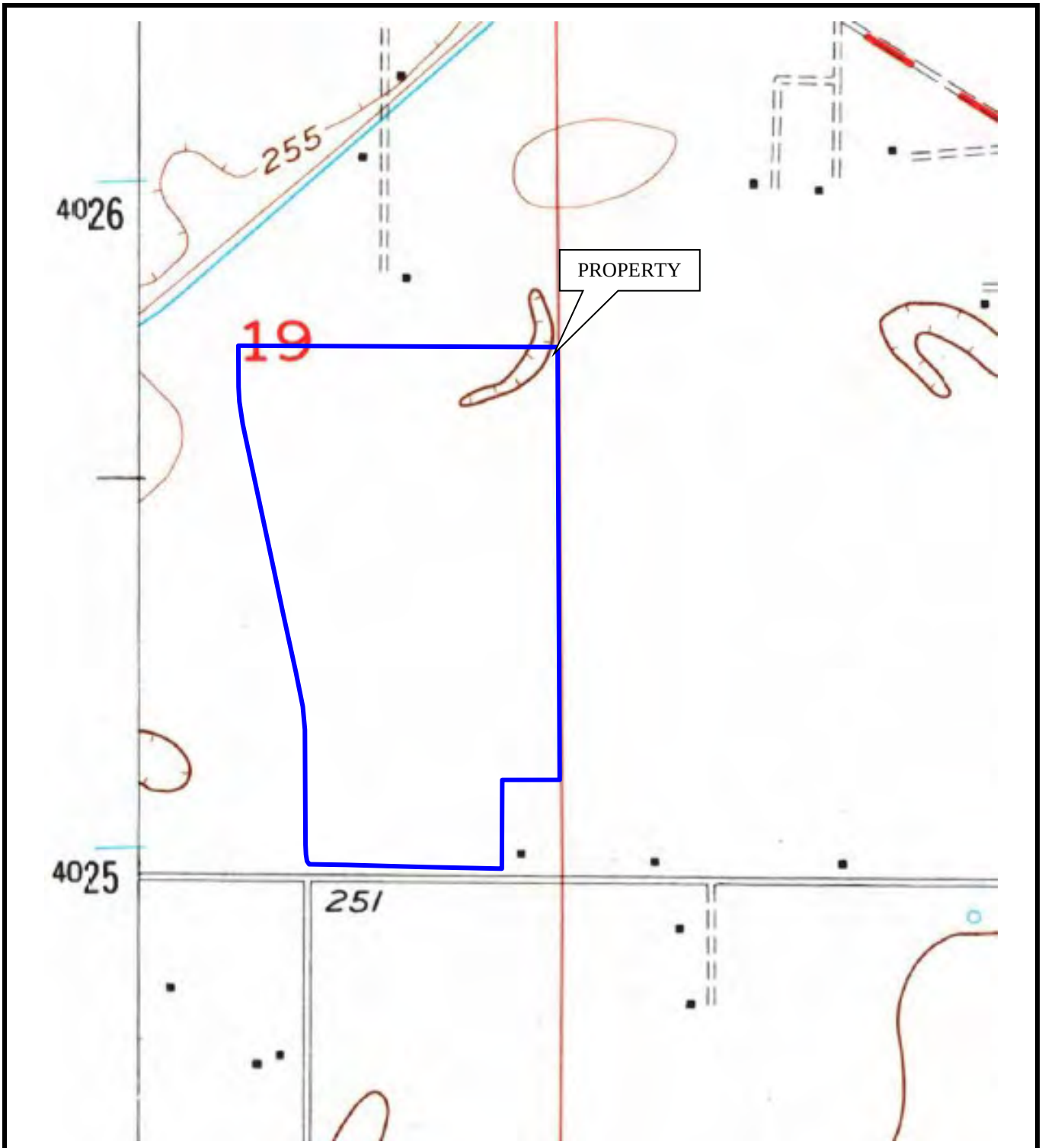
SITE VICINITY MAP	⇧ NORTH
PAUL HUMPHREY, EP **7402 E. CLINTON AVENUE** **FRESNO, CA 93737** **(559) 977-9813**	Site: Proposed Development Site Address: APNs 014-143-069 & 014-143-078 Hanford, CA Project Number: 24-89

SITE PLAN

⇧ NORTH
Not to scale

PAUL HUMPHREY, EP
7402 E. CLINTON AVENUE
FRESNO, CA 93737
(559) 977-9813

Site:	Proposed Development
Site Address:	APNs 014-143-069 & 014-143-078
	Hanford, CA
Project Number:	24-89



PAUL HUMPHREY, EP
7402 E. CLINTON AVENUE
FRESNO, CA 93737
(559) 977-9813

TOPOGRAPHIC MAP

Source: U.S.G.S. 7.5 Minute Topographic Map

Remnoy, CA, Quadrangle, 1954

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N

APPENDIX A

SITE PHOTOGRAPHS

1. Southwest area of Subject Property.

2. Northwest portion of Subject Property.

3. Central area of Subject Property from west boundary.

4. Transformer, irrigation well, and standpipe on north portion of Subject Property.

5. Northeast area of Subject Property.

6. Central area of Subject Property from east boundary.

7. Southeast area of Subject Property.

8. North adjoining agricultural land and residences.

9. East adjoining agricultural land.

10. Southeast adjoining residence and vacant land area.

11. View across Grangeville Blvd of south adjoining agricultural land.

12. View across 9 1/8 Avene of west adjoining residences.

APPENDIX B

HISTORICAL RESEARCH DOCUMENTATION

EXHIBIT B-1

AERIAL PHOTOGRAPHS

HISTORICAL AERIALS

Project Property: Copper Ridge
NEC Grangeville Blvd and 9 1/4 Ave.
California 93230 CA 93230

Project No: 24-89

Requested By: Paul Humphrey, REPA

Order No: 24071600420

Date Completed: July 18,2024

Aerial Maps included in this report are produced by the sources listed above and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property. ERIS provides no warranty of accuracy or liability. The information contained in this report has been produced using aerial photos listed in above sources by ERIS Information Inc. (in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS'. The maps contained in this report do not purport to be and do not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

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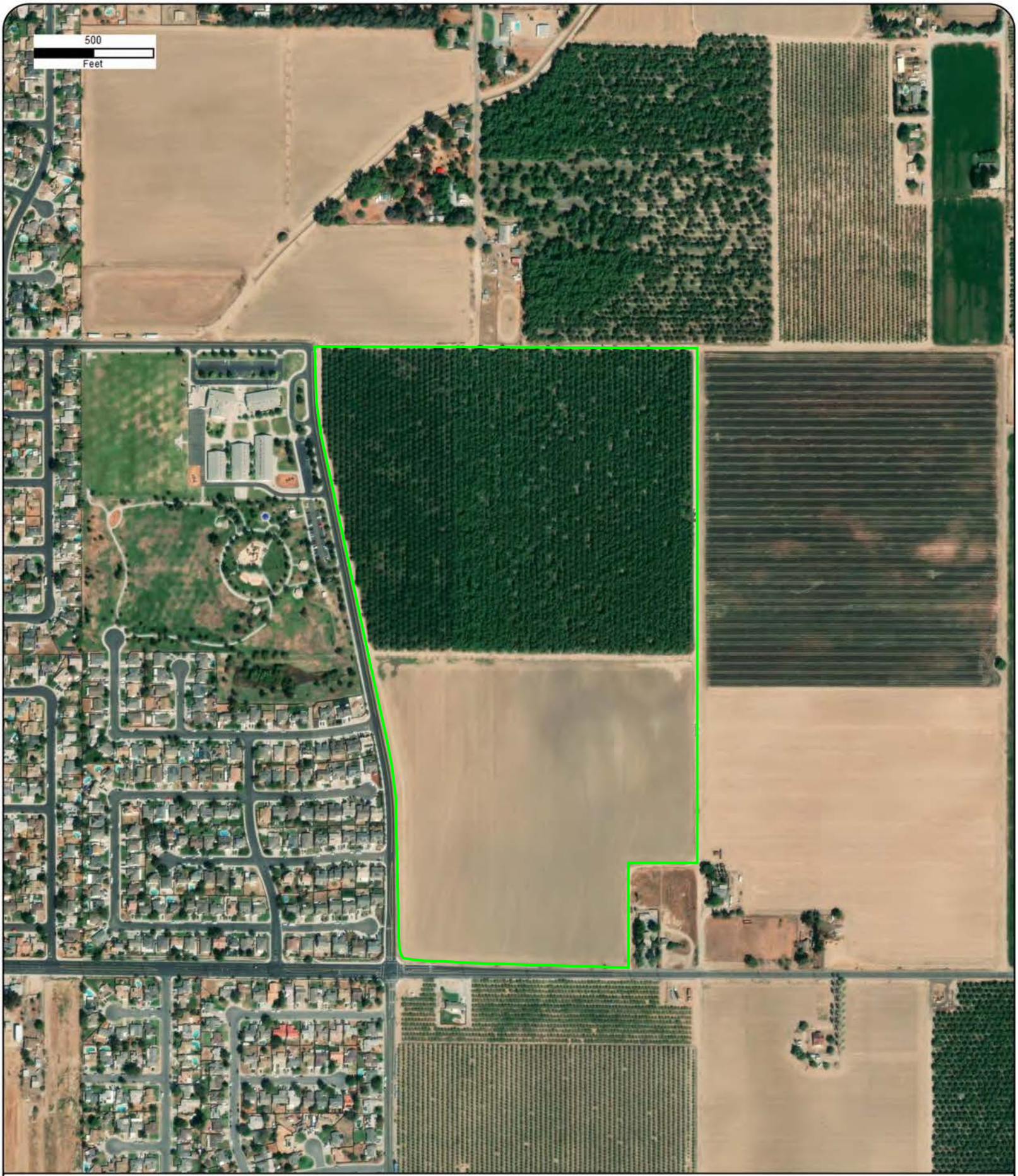
Date	Source	Scale	Comments
2021	Maxar Technologies	1" = 500'	
2020	United States Department of Agriculture	1" = 500'	
2018	United States Department of Agriculture	1" = 500'	
2016	United States Department of Agriculture	1" = 500'	
2014	United States Department of Agriculture	1" = 500'	
2012	United States Department of Agriculture	1" = 500'	
2010	United States Department of Agriculture	1" = 500'	
2009	United States Department of Agriculture	1" = 500'	
2006	United States Department of Agriculture	1" = 500'	
2005	United States Department of Agriculture	1" = 500'	
2004	United States Department of Agriculture	1" = 500'	
2003	United States Department of Agriculture	1" = 500'	
1994	United States Geological Survey	1" = 500'	
1986	United States Geological Survey	1" = 500'	
1984	United States Geological Survey	1" = 500'	
1974	United States Geological Survey	1" = 500'	
1967	Agricultural Stabilization & Conserv. Service	1" = 500'	
1954	Army Mapping Service	1" = 500'	
1950	Agricultural Stabilization & Conserv. Service	1" = 500'	
1942	Agricultural Stabilization & Conserv. Service	1" = 500'	
1934	Fairchild	1" = 500'	



Year: 2021
Source: MAXAR
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2020
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2018
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

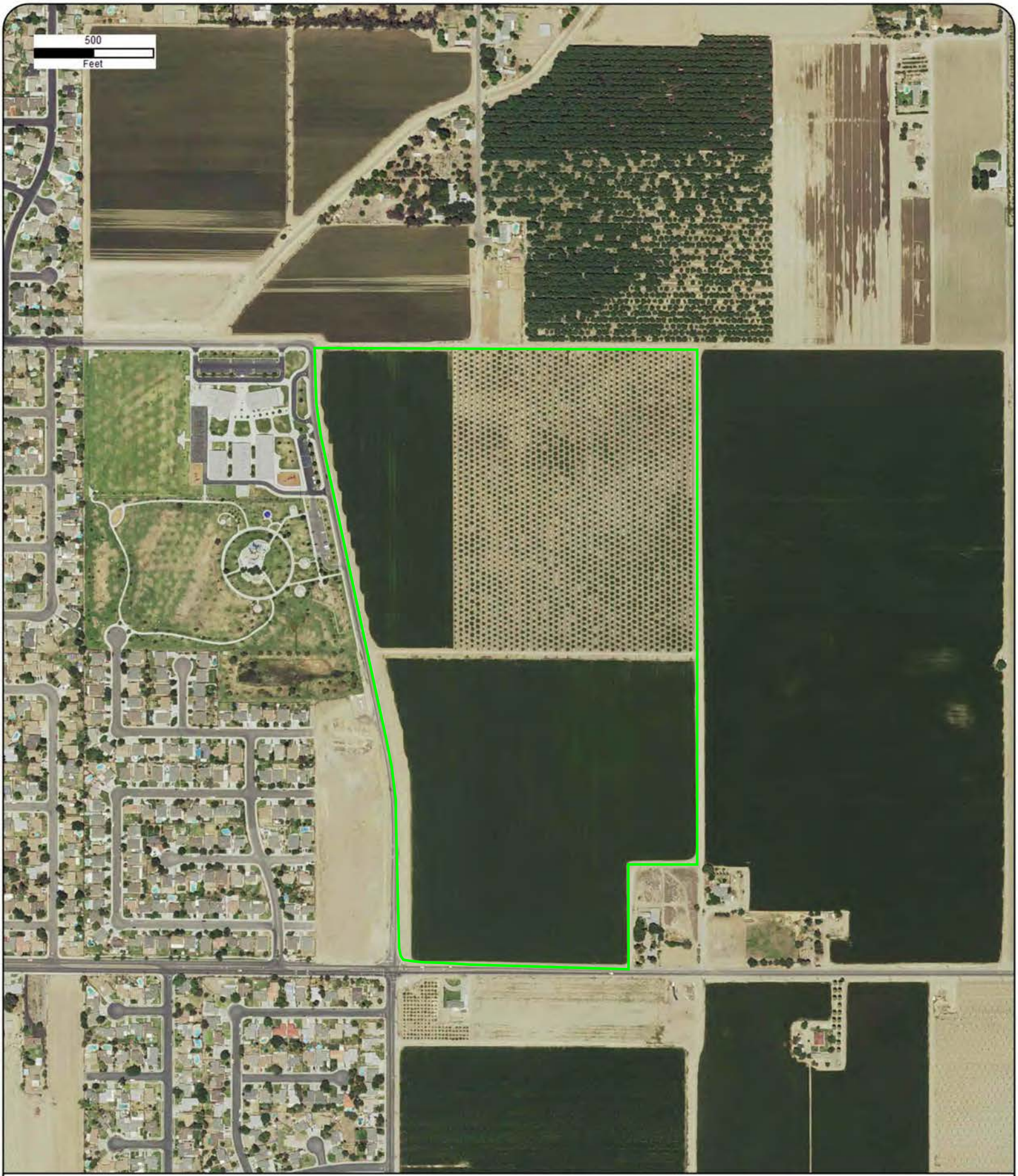
ERIS

Year: 2016
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS



Year: 2014
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2012
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2010
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2009
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 2006
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

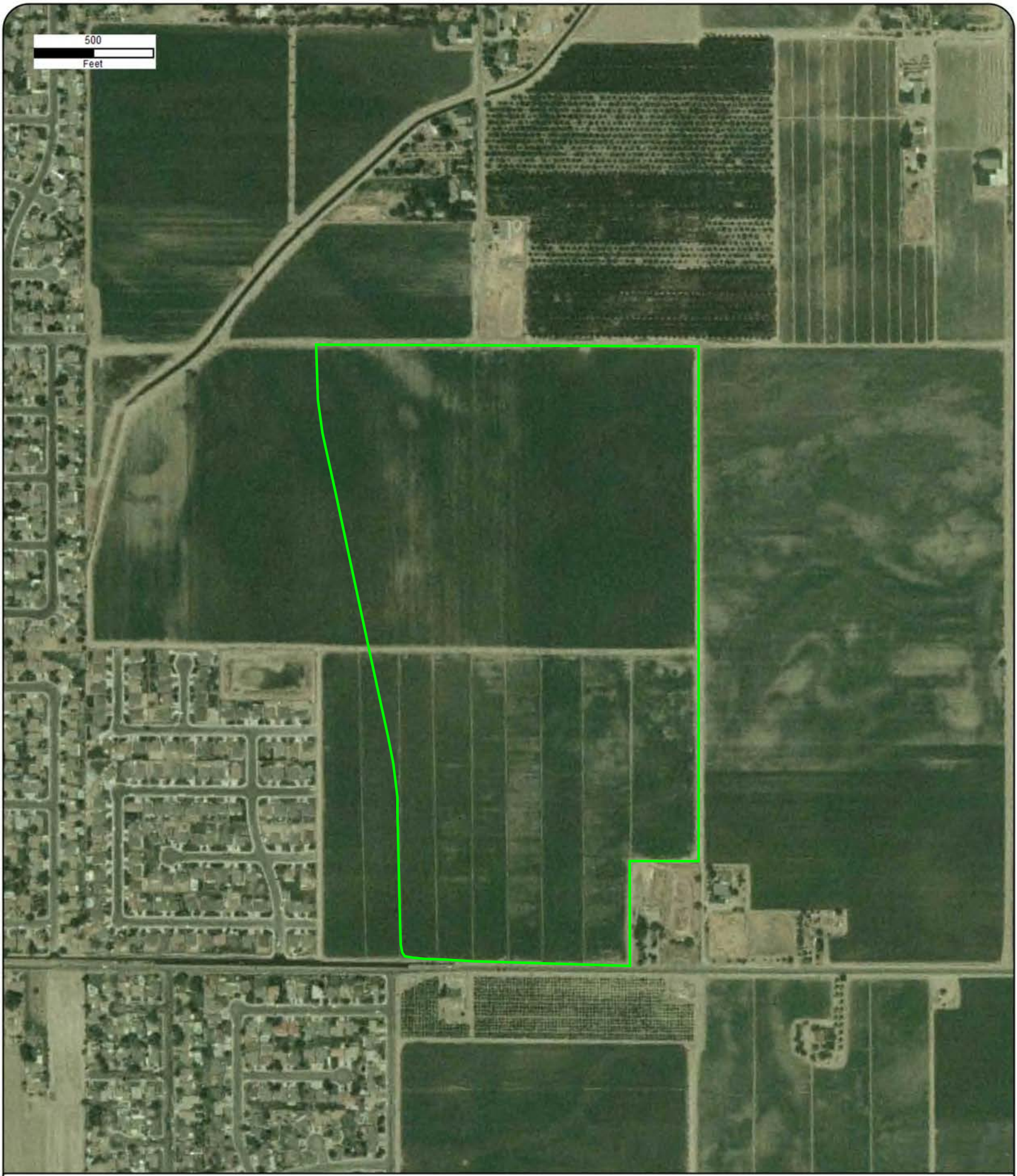
ERIS

Year: 2005
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS



Year: 2004
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

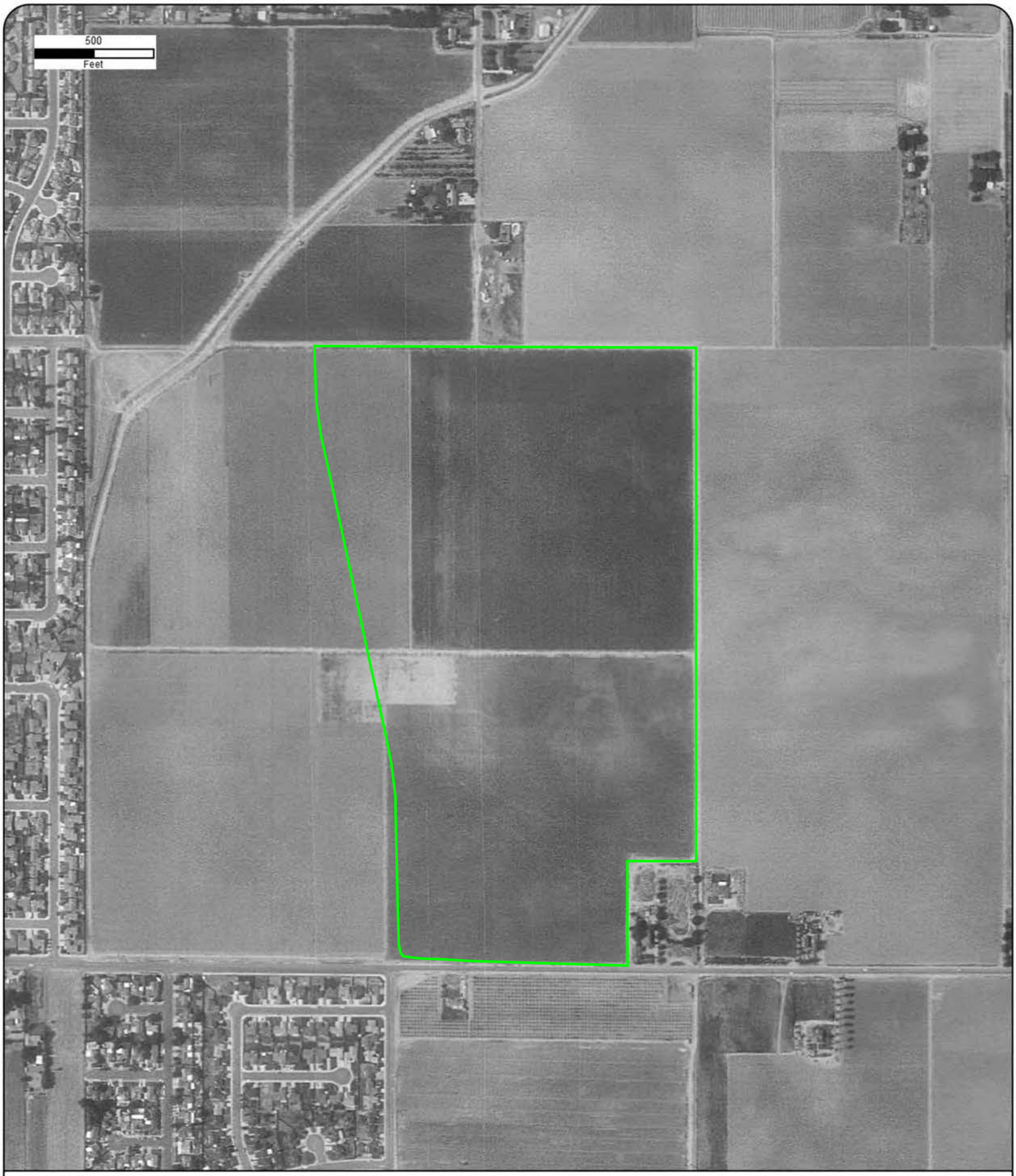
ERIS

Year: 2003
Source: USDA
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS



Year: 1994
Source: USGS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1986
Source: USGS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1984
Source: USGS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

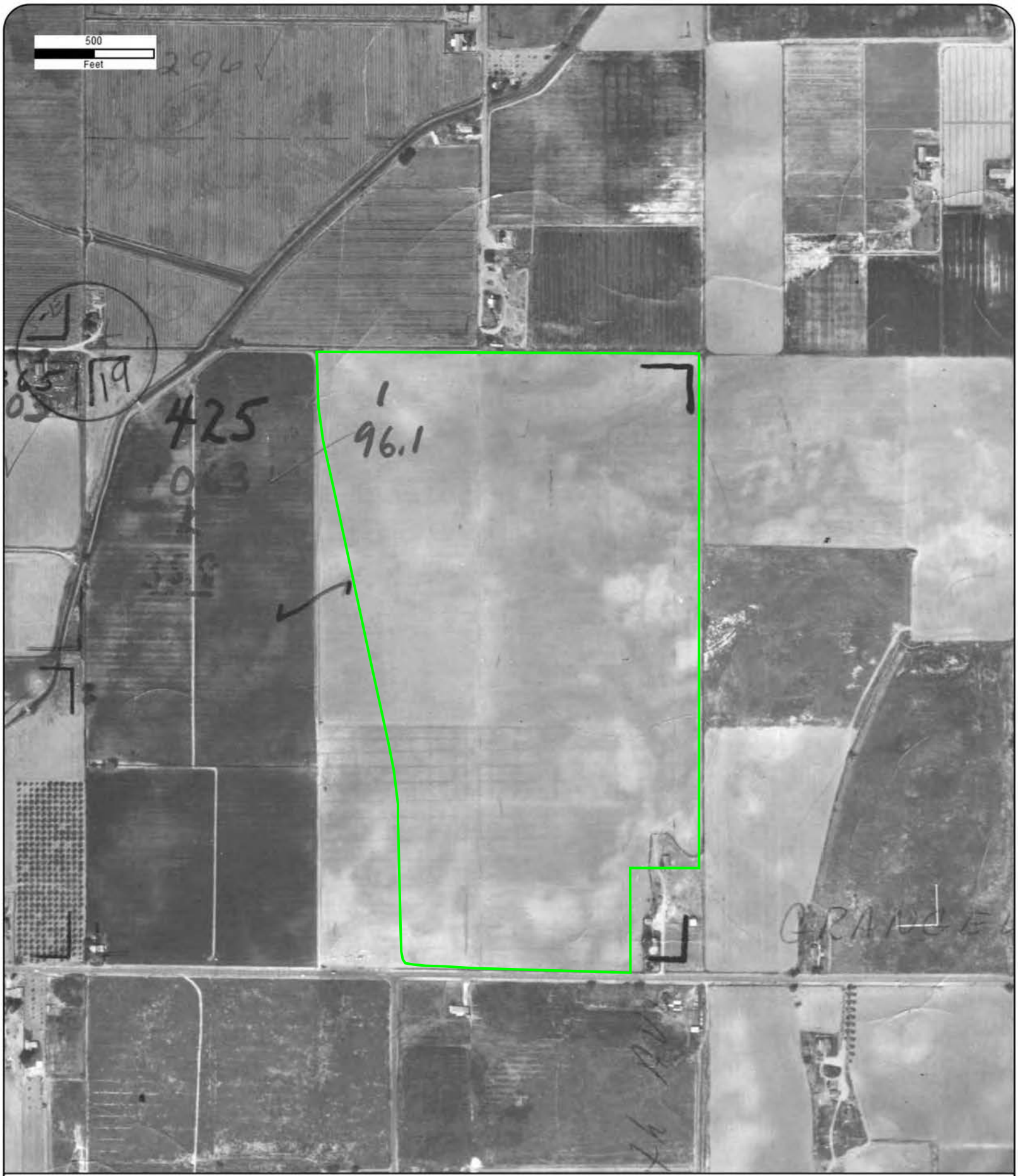
ERIS

Year: 1974
Source: USGS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS



Year: 1967
Source: ASCS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1954
Source: AMS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1950
Source: ASCS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1942
Source: ASCS
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

Year: 1934
Source: FAIRCHILD
Scale: 1" = 500'
Comment:

Address: NEC Grangeville Blvd and 9 1/4 Ave.,
California 93230, CA
Approx Center: -119.62150679,36.3465561

Order No: 24071600420

ERIS

APPENDIX C

REGULATORY RECORDS DOCUMENTATION

EXHIBIT C-1

MAPPED DATABASE REPORT

DATABASE REPORT

Project Property:	*Copper Ridge* *NEC Grangeville Blvd and 9 1/4 Ave.* *California 93230 CA 93230*
Project No:	*24-89*
Report Type:	*Database Report*
Order No:	*24071600420*
Requested by:	*Paul Humphrey, REPA*
Date Completed:	*July 18, 2024*

Environmental Risk Information Services
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Executive Summary

Property Information:

Project Property:		*Copper Ridge* *NEC Grangeville Blvd and 9 1/4 Ave. California 93230 CA 93230*
Project No:		*24-89*
Coordinates:		
	Latitude:	*36.3465561*
	Longitude:	*-119.62150679*
	UTM Northing:	*4,025,578.71*
	UTM Easting:	*264,743.26*
	UTM Zone:	*11S*
Elevation:		*256 FT*

Order Information:

Order No:	*24071600420*
Date Requested:	*July 16, 2024*
Requested by:	*Paul Humphrey, REPA*
Report Type:	*Database Report*

Historicals/Products:

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA VSQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	***2***	-	-	***2***
RCRA CONTROLS	Y	0.5	0	0	0	0	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
LUCIS	Y	0.5	0	0	0	0	-	0
NPL IC	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
FRP	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DELISTED FRP	Y	0.25	0	0	0	-	-	0
HIST GAS STATIONS	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
DOE FUSRAP	Y	1	0	0	0	0	0	0
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	0	0	**1**	0	**1**
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	**1**	**1**
SWRCB SWF	Y	0.5	0	0	0	0	-	0
WMUD	Y	0.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	0.5	0	0	0	0	-	0
C&D DEBRIS RECY	Y	0.5	0	0	0	0	-	0
RECYCLING	Y	0.5	0	0	0	0	-	0
PROCESSORS	Y	0.5	0	0	0	0	-	0
CONTAINER RECY	Y	0.5	0	0	0	0	-	0
LDS	Y	0.5	0	0	0	0	-	0
LUST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
UST CLOSURE	Y	0.5	0	0	0	0	-	0
HHSS	Y	0.25	0	0	0	-	-	0
UST SWEEPS	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
AST SWRCB	Y	0.25	0	0	0	-	-	0
TANK OIL GAS	Y	0.25	0	0	0	-	-	0
DELISTED TNK	Y	0.25	0	0	0	-	-	0
CERS TANK	Y	0.25	0	0	**1**	-	-	**1**
DELISTED CTNK	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
LUR	Y	0.5	0	0	0	**1**	-	**1**
CALSITES	Y	0.5	0	0	0	0	-	0
HLUR	Y	0.5	0	0	0	0	-	0
DEED	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	**1**	-	**1**
CLEANUP SITES	Y	0.5	0	0	0	0	-	0
DELISTED CLEANUP	Y	0.5	0	0	0	0	-	0
DELISTED COUNTY	Y	0.25	0	**1**	0	-	-	**1**
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED INDIAN LST	Y	0.5	0	0	0	0	-	0
DELISTED INDIAN UST	Y	0.25	0	0	0	-	-	0
County								
UST KINGS	Y	0.25	0	0	0	-	-	0
CUPA KINGS	Y	0.25	0	0	**1**	-	-	**1**
Additional Environmental Records								
Federal								
PFAS GHG	Y	0.5	0	0	0	0	-	0
OSC RESPONSE	Y	0.125	0	0	-	-	-	0
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS NPL	Y	0.5	0	0	0	0	-	0
PFAS FED SITES	Y	0.5	0	0	0	0	-	0
PFAS SSEHRI	Y	0.5	0	0	0	0	-	0
ERNS PFAS	Y	0.5	0	0	0	0	-	0
PFAS NPDES	Y	0.5	0	0	0	0	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
PFAS TSCA	Y	0.5	0	0	0	0	-	0
PFAS E-MANIFEST	Y	0.5	0	0	0	0	-	0
PFAS IND	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
FUDS MRS	Y	1	0	0	0	0	0	0
FORMER NIKE	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
SMCRA	Y	1	0	0	0	0	0	0
MRDS	Y	1	0	0	0	0	0	0
LM SITES	Y	1	0	0	0	0	0	0
ALT FUELS	Y	0.25	0	**1**	0	-	-	**1**
CONSENT DECREES	Y	0.25	0	0	0	-	-	0
AFS	Y	PO	0	-	-	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCBT	Y	0.5	0	0	0	0	-	0
PCB	Y	0.5	0	0	0	0	-	0
State								
PFAS SAMPLING	Y	0.5	0	0	0	0	-	0
DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DRYC GRANT	Y	0.25	0	0	0	-	-	0
PFAS GT CLEANUPS	Y	0.5	0	0	0	0	-	0
PFAS GW	Y	0.5	0	0	0	0	-	0
PFAS INVEST	Y	0.5	0	0	0	0	-	0
HWSS CLEANUP	Y	0.5	0	0	0	0	-	0
TOXIC PITS	Y	1	0	0	0	0	**1**	**1**

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DTSC HWF	Y	0.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	0	0
CHMIRS	Y	PO	0	-	-	-	-	0
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HAZNET	Y	PO	0	-	-	-	-	0
HAZ GEN	Y	PO	0	**1**	-	-	-	**1**
HAZ TSD	Y	0.5	0	0	0	0	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HW TRANSPORT	Y	0.125	0	0	-	-	-	0
WASTE TIRE	Y	PO	0	-	-	-	-	0
MEDICAL WASTE	Y	0.25	0	0	0	-	-	0
HIST CORTESE	Y	0.5	0	0	0	0	-	0
CDO/CAO	Y	0.5	0	0	0	0	-	0
CERS HAZ	Y	0.125	0	0	-	-	-	0
DELISTED HAZ	Y	0.5	0	0	0	0	-	0
GEOTRACKER	Y	0.125	0	0	-	-	-	0
MINE	Y	1	0	0	0	0	0	0
LIEN	Y	PO	0	-	-	-	-	0
WASTE DISCHG	Y	0.25	0	0	0	-	-	0
EMISSIONS	Y	0.25	0	0	0	-	-	0
CDL	Y	0.125	0	0	-	-	-	0
Tribal	***No Tribal additional environmental record sources available for this State.***							
County								
Total:			*0*	***3***	***4***	***3***	***2***	***12***

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	HAZ GEN	STEPHEN PERRY	9642 GRANGEVILLE HANFORD CA 932300000	S	0.00 / 25.29	-1	19
2	DELISTED COUNTY	HAMILTON ELEMENTARY SCHOOL	1269 LELAND WY HANFORD CA 93230	NW	0.05 / 266.32	2	19
3	ALT FUELS	HANFORD ESD HANILTON	1269 E Leland Way Hanford CA 93230	NW	0.07 / 370.12	2	19
			ID: 260582				
4	CUPA KINGS	JIM LOOGMAN	8910 GRANGEVILLE BLVD HANFORD CA 93230	SE	0.16 / 831.70	-2	20
4	CERS TANK	Jim Loogman	8910 GRANGEVILLE BLVD HANFORD CA 93230	SE	0.16 / 831.70	-2	20
			Site ID: 39964				
5	RCRA NON GEN	ARACELI FERRAL	1178 EAST BASS STREET HANFORD CA 93230	SW	0.24 / 1,255.52	-2	23
			EPA Handler ID: CAC003211893				
6	RCRA NON GEN	MARIA SANTIAGO	1142 E. BASS ST. HANFORD CA 93230	SW	0.25 / 1,312.06	-3	24
			EPA Handler ID: CAC003273091				
7	VCP	LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	-3	25
			Estor/EPA ID | Cleanup Status: 16820002 | CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010				
7	LUR	LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	-3	27
			Estor/EPA ID | Cleanup Status: 16820002 | CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010				
7	ENVIROSTOR	LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	-3	28
			Estor/EPA ID | Cleanup Status: 16820002 | CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010				
8	SWF/LF	Volpa Landfill	8526 8-1/2 Avenue Hanford CA 93230	ENE	0.50 / 2,643.76	-2	30
			Act Opl Status | Activity: Closed | Solid Waste Disposal Site				
9	TOXIC PITS	HITCHCOCK TRANSPORTATION CO.	9150 LACEY BLVD. HANFORD CA 93232	S	0.99 / 5,240.08	-3	31

Executive Summary: Summary by Data Source

Standard

Federal

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Apr 8, 2024 has found that there are 2 RCRA NON GEN site(s) within approximately 0.25miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ARACELI FERRAL	1178 EAST BASS STREET HANFORD CA 93230	SW	0.24 / 1,255.52	5
	***EPA Handler ID**: CAC003211893*			
MARIA SANTIAGO	1142 E. BASS ST. HANFORD CA 93230	SW	0.25 / 1,312.06	6
	***EPA Handler ID**: CAC003273091*			

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated Jun 25, 2024 has found that there are 1 ENVIROSTOR site(s) within approximately 1.00miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	7
	***Estor/EPA ID**	**Cleanup Status**: 16820002	CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010*		

SWF/LF - Solid Waste Information System (SWIS)

A search of the SWF/LF database, dated May 10, 2024 has found that there are 1 SWF/LF site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Volpa Landfill	8526 8-1/2 Avenue Hanford CA 93230	ENE	0.50 / 2,643.76	8
	***Act Opl Status**	**Activity**: Closed	Solid Waste Disposal Site*		

CERS TANK - California Environmental Reporting System (CERS) Tanks

A search of the CERS TANK database, dated Apr 25, 2024 has found that there are 1 CERS TANK site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Jim Loogman	8910 GRANGEVILLE BLVD HANFORD CA 93230	SE	0.16 / 831.70	4

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Site ID**: 39964*			

LUR - Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions

A search of the LUR database, dated Jun 25, 2024 has found that there are 1 LUR site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	7
	***Estor/EPA ID | Cleanup Status**: 16820002 | CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010*			

VCP - Voluntary Cleanup Program

A search of the VCP database, dated Jun 25, 2024 has found that there are 1 VCP site(s) within approximately 0.50miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
LEE RICHMOND JR. HIGH SCHOOL	1000 E FLORINDA ST HANFORD CA 93230	SW	0.45 / 2,390.22	7
	***Estor/EPA ID | Cleanup Status**: 16820002 | CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010*			

DELISTED COUNTY - Delisted County Records

A search of the DELISTED COUNTY database, dated Jun 24, 2024 has found that there are 1 DELISTED COUNTY site(s) within approximately 0.25miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
HAMILTON ELEMENTARY SCHOOL	1269 LELAND WY HANFORD CA 93230	NW	0.05 / 266.32	2

County

CUPA KINGS - Kings County - CUPA Facility List

A search of the CUPA KINGS database, dated Dec 3, 2020 has found that there are 1 CUPA KINGS site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
JIM LOOGMAN	8910 GRANGEVILLE BLVD HANFORD CA 93230	SE	0.16 / 831.70	4

Non Standard

Federal

ALT FUELS - Alternative Fueling Stations

A search of the ALT FUELS database, dated Apr 30, 2024 has found that there are 1 ALT FUELS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
HANFORD ESD HANILTON	1269 E Leland Way Hanford CA 93230 ***ID**: 260582*	NW	0.07 / 370.12	3

State

TOXIC PITS - Toxic Pit Cleanup Act Sites

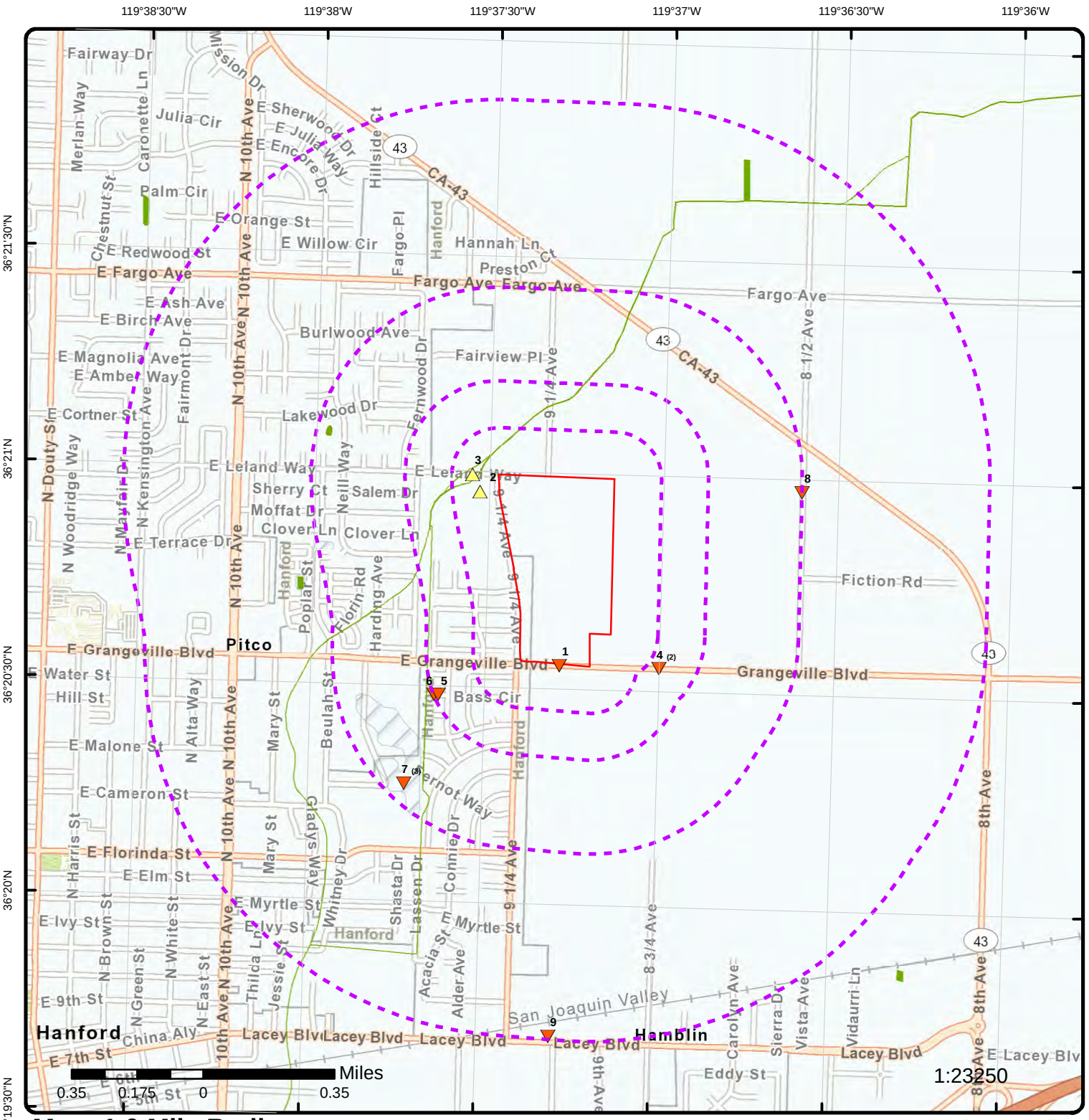
A search of the TOXIC PITS database, dated Jul 1, 1995 has found that there are 1 TOXIC PITS site(s) within approximately 1.00miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
HITCHCOCK TRANSPORTATION CO.	9150 LACEY BLVD. HANFORD CA 93232	S	0.99 / 5,240.08	9

HAZ GEN - Generators from Hazardous Waste Manifest Data

A search of the HAZ GEN database, dated Dec 31, 2017 has found that there are 1 HAZ GEN site(s) within approximately 0.02miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
STEPHEN PERRY	9642 GRANGEVILLE HANFORD CA 932300000	S	0.00 / 25.29	1



Map: 1.0 Mile Radius

Order Number: 24071600420

Address: NEC Grangeville Blvd and 9 1/4 Ave., California 93230, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

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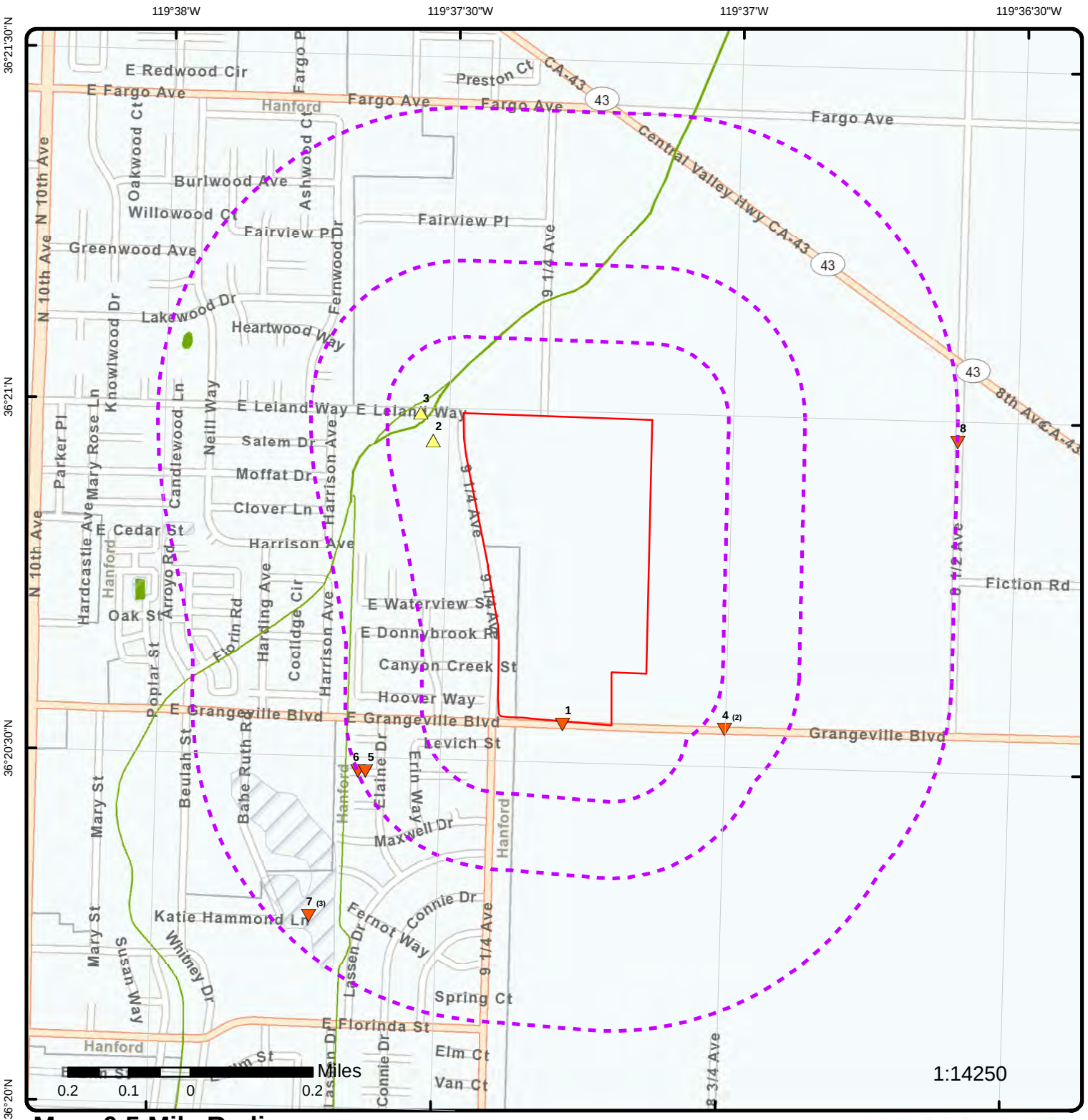


Map: 0.5 Mile Radius

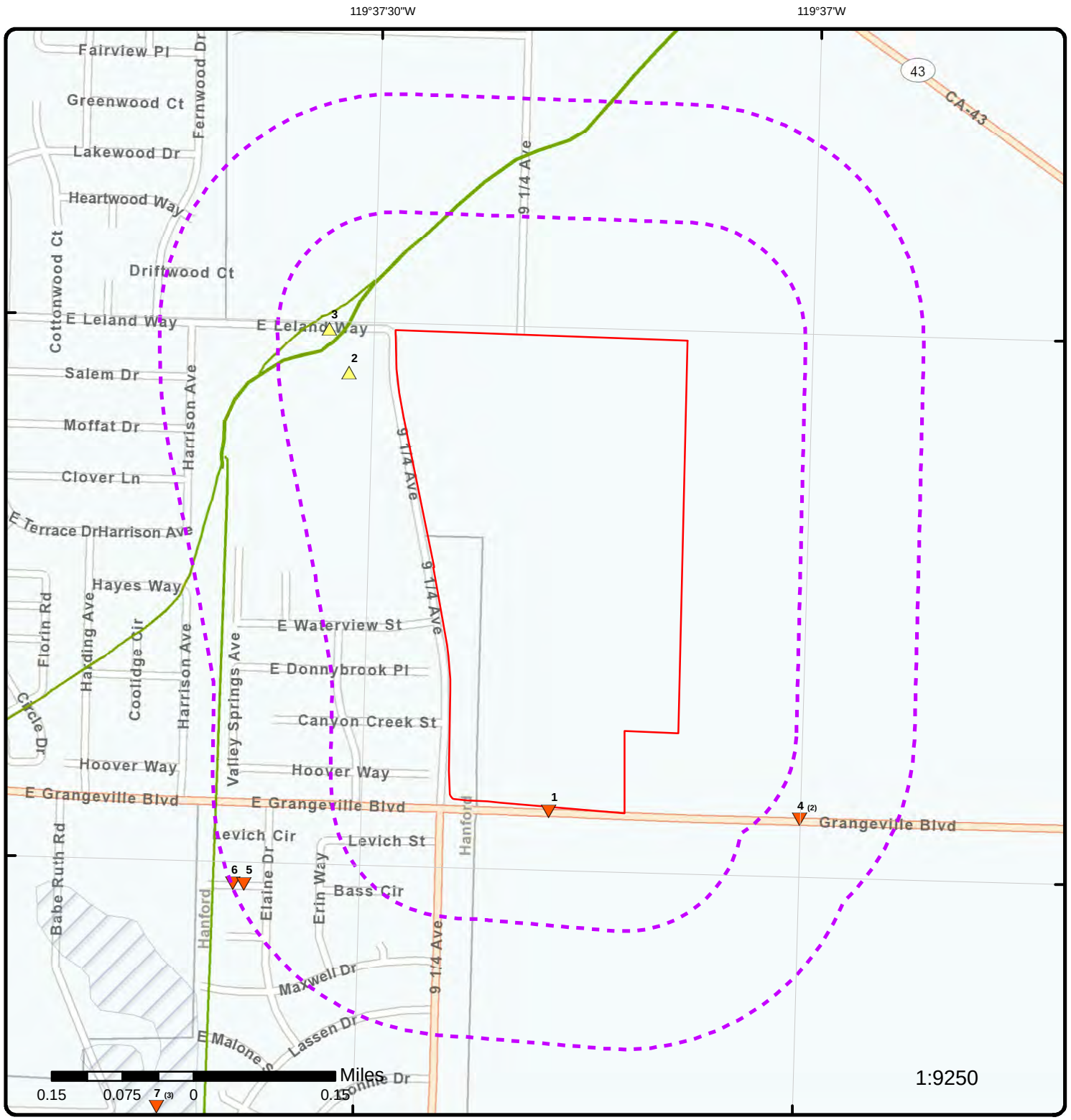
Order Number: 24071600420

Address: NEC Grangeville Blvd and 9 1/4 Ave., California 93230, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

© ERIS Information Inc.



Map: 0.25 Mile Radius

Order Number: 24071600420

Address: NEC Grangeville Blvd and 9 1/4 Ave., California 93230, CA

- Project Property
- Buffer Outline
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation
- Areas with Higher Elevation
- Areas with Same Elevation
- Areas with Lower Elevation
- Areas with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major & Minor Arterial
- Traffic Circle; Ramp
- Local Road
- Rail
- State
- Country
- National Wetland
- Indian Reserve Land
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- National Priorities List (Active, Delisted, Proposed, Institutional Control)

Source: © 2021 ESRI StreetMap Premium

© ERIS Information Inc.

Aerial **Year: 2021**

Order Number: 24071600420

Address: NEC Grangeville Blvd and 9 1/4 Ave., California 93230, CA

Source: ESRI World Imagery

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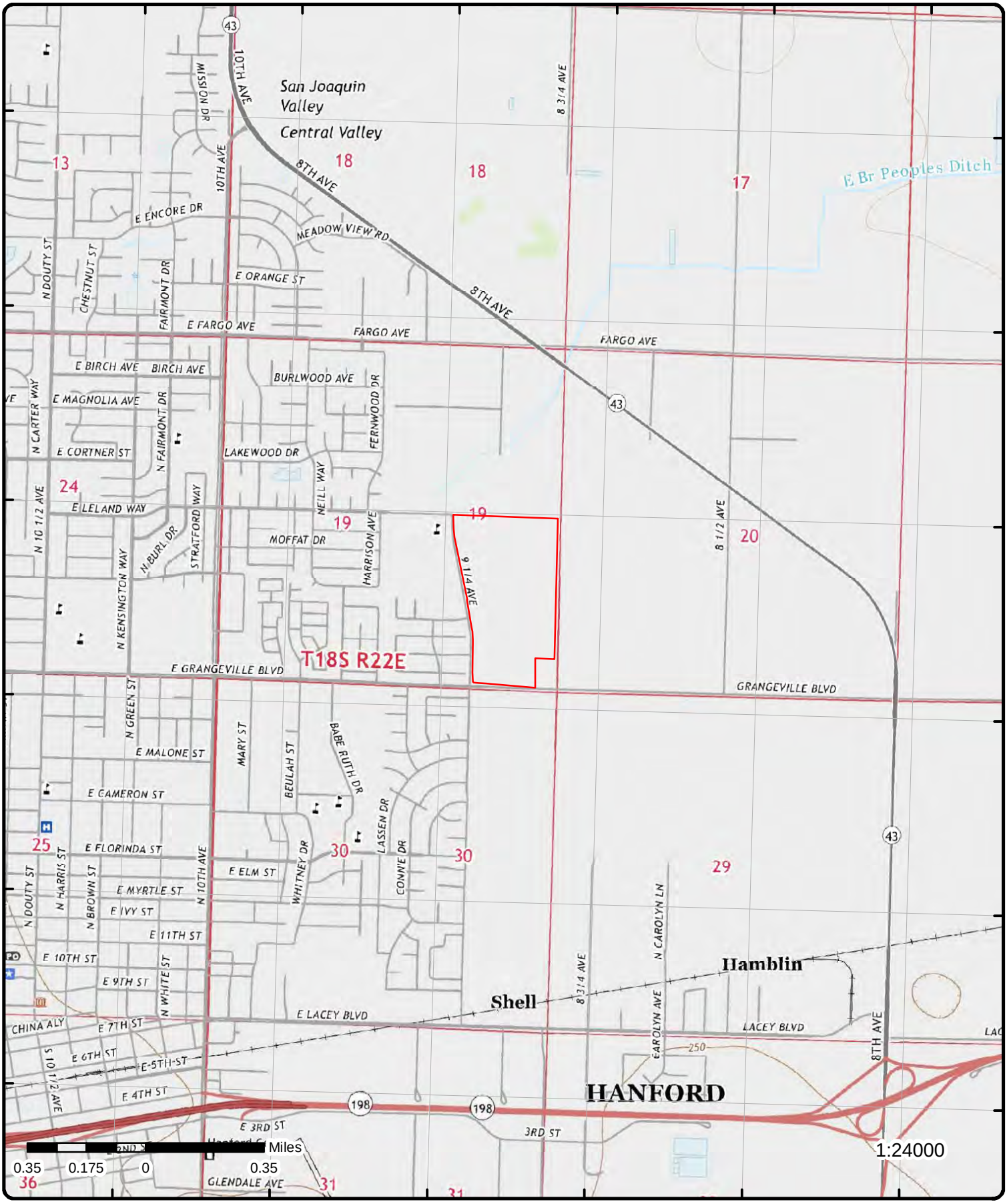


Topographic Map

Year: 2021

Order Number: 24071600420

Address: NEC Grangeville Blvd and 9 1/4 Ave., CA

Quadrangle(s): Hanford CA, Laton CA, Remnoy CA, Burris Park CA

Source: USGS Topographic Map

© ERIS Information Inc.

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of1	S	0.00 / 25.29	254.52 / -1	STEPHEN PERRY 9642 GRANGEVILLE HANFORD CA 932300000	HAZ GEN

Epa ID: CAC001410120
Facility County: 16
Address 2:
County: Kings
Details DTSC HWTS: The Department of Toxic Substances Control (DTSC) makes available a Waste Code Matrix showing each Waste Code, its description, and annual amounts in its Hazardous Waste Tracking System: https://hwts.dtsc.ca.gov/search
Handler Profile URL: https://hwts.dtsc.ca.gov/facility/CAC001410120

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of1	NW	0.05 / 266.32	257.64 / 2	HAMILTON ELEMENTARY SCHOOL 1269 LELAND WY HANFORD CA 93230	DELISTED COUNTY

Delisted County Records

Original Source Facility ID: FA0003213
Original Source Name: Kings County - CUPA Facility List
Record Dt: 09-APR-2019
Record Date: 09-APR-2019

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of1	NW	0.07 / 370.12	257.61 / 2	HANFORD ESD HANILTON 1269 E Leland Way Hanford CA 93230	ALT FUELS

ID: 260582
Fuel Type Code: ELEC: Electric
Station Phone: 888-758-4389
Expected Date:
BD Blends:
NG PSI:
Federal Agency ID:
Open Date: 2023-05-10
Hydrogen is Retail:
Federal Agency:
Facility Type:
Dt Last Confirmed: 2024-04-30
Updated at: 2024-04-30 01:34:45 UTC
Access Code: public
Access Detail Code:
Groups with Access Code: Public
Groups with Access Code Fr: Public
Fed Agency Name:
Hydrogen Status Link:
E85 Other Ethanol Blends:
NPS Unit Name:
Cards Accepted:
CNG Statn Sells Renewable Na:
LNG Statn Sells Renewable Na:
Maximum Vehicle Class:
RD Blended With Biodiesel:
RD Blends:
RD Blends French:
RD Maximum Biodiesel Level:
CNG Dispenser No:
CNG Site Renew Src:
CNG Tot Compr Cap:
CNG Storage Cap:
CNG Fill Type Code:
CNG PSI:
CNG Vehicle Class:
LNG Site Renew Src:
LNG Vehicle Class:
LPG Nozzle Types:
Hydrogen Pressures:
Hydrogen Standards:
Latitude: 36.349533
Longitude: -119.62515

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Status:	Open: The station is open.
Owner Type Desc:	
E85 Blender Pump Desc:	
NG Fill Type Desc:	
NG Vehicle Class Desc:	
Geocode Status Desc:	The location is from a real GPS readout at the station.
Group with Access Desc:	Publicly available to all customers.
LPG Primary Desc:	
Intersection Directions:	
Access Days Time:	24 hours daily
Restricted Access:	
Ev Workplace Charging:	false

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of2	SE	0.16 / 831.70	254.10 / -2	JIM LOOGMAN 8910 GRANGEVILLE BLVD HANFORD CA 93230	CUPA KINGS

Facility ID: FA0001112

Detail(s)

Mailing Name:	JIM LOOGMAN
Mailing Address1:	1155 WESTWOOD DR
Mailing State:	CA
Mailing Zip:	93230

Detail(s)

CERS ID:	
Prgm Elm Code:	2113
Status:	Inactive
CERS ID:	
Prgm Elm Code:	1901
Status:	Active
CERS ID:	
Prgm Elm Code:	2229
Status:	Active
CERS ID:	
Prgm Elm Code:	
Status:	Inactive

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	2 of2	SE	0.16 / 831.70	254.10 / -2	Jim Loogman 8910 GRANGEVILLE BLVD HANFORD CA 93230	CERS TANK

Site ID:	39964
Latitude:	36.346352
Longitude:	-119.616669

Regulated Programs

EI ID:	10485466
EI Description:	Chemical Storage Facilities
EI ID:	10485466
EI Description:	Aboveground Petroleum Storage
EI ID:	10485466
EI Description:	Hazardous Waste Generator

Violations

Violation Date: 04/13/2016
Violation Source: CERS
Violation Program: HMRRP
Violation Division: Kings County Environmental Health
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Notes:

Returned to compliance on 04/19/2016. The facility's HMBP needs to be updated. Please update the following items in CERS: 1. Motor Oil- located east of house. 2. Pump oil must be added. The operator stores 55 gallon of this hazardous material east of the house. 3. Trap wagon of diesel must be added. The trap wagon is 550 gallons and is stored on the east side of the house. The facility's site map must be updated to reflect the above noted changes.

Violation Description:

Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.

Enforcements

Enf Action Date: 04/13/2016
Enf Action Program: HMRRP
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Source: CERS
Enf Action Division: Kings County Environmental Health
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:

Evaluations

Eval Date: 04/13/2016
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Kings County Environmental Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

The operator currently hauls his waste oil to Buford Oil in Hanford, CA. Operator only generates 55 gallons of waste oil once a year. The waste oil drum was observed properly maintained.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 04/13/2016
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Kings County Environmental Health
Eval Program: APSA
Eval Source: CERS
Eval Notes:

Eval Date: 04/13/2016
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Kings County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

The facility's hazardous materials were observed properly stored and contained. Since the facility has above 2500 gallons of petroleum based products, the facility falls into the AGT program. As a result, when the operator receives their yearly bill, they will see a $70 fee. Please remember to update CERS information on CERS once a year when the invoice arrives.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Affiliations

Affil Type Desc: Document Preparer
Entity Name: Jim Loogman
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title:
Address: 1155 Westwood Dr.
City: Hanford
State: CA
Country:
Zip Code: 93230
Phone:

Affil Type Desc: Environmental Contact
Entity Name: Jim Loogman
Entity Title:
Address: 1155 Westwood Dr.
City: Hanford
State: CA
Country:
Zip Code: 93230
Phone:

Affil Type Desc: CUPA District
Entity Name: Kings County Env Health
Entity Title:
Address: 330 Campus Drive
City: Hanford
State: CA
Country:
Zip Code: 93230
Phone: (559) 584-1411

Affil Type Desc: Operator
Entity Name: Jim Loogman
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone: (559) 816-2773

Affil Type Desc: Legal Owner
Entity Name: Jim Loogman
Entity Title:
Address: 1155 Westwood Dr.
City: Hanford
State: CA
Country: United States
Zip Code: 93230
Phone: (559) 816-2773

Affil Type Desc: Parent Corporation
Entity Name: Jim Loogman
Entity Title:
Address:
City:
State:
Country:

Zip Code:
Phone:

Affil Type Desc: Identification Signer
Entity Name: Jim Loogman
Entity Title: Owner
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Property Owner
Entity Name: Jim Loogman
Entity Title:
Address: 1155 Westwood Dr
City: Hanford
State: CA
Country: United States
Zip Code: 93230
Phone: (559) 816-2773

Coordinates

Env Int Type Code: HWG
Program ID: 10485466
Latitude: 36.346330
Longitude: -119.616590
Coord Name:
Ref Point Type Desc: Center of a facility or station.

---

5 | ***1 of1*** | ***SW*** | ***0.24 / 1,255.52*** | ***253.47 / -2*** | ***ARACELI FERRAL
1178 EAST BASS STREET
HANFORD CA 93230*** | ***RCRA NON GEN***

EPA Handler ID: CAC003211893
Gen Status Universe: No Report
Contact Name: ARACELI FERRAL
Contact Address: 1178 EAST BASS STREET , , HANFORD , CA, 93230 ,
Contact Phone No and Ext: 559-212-8984
Contact Email: LUCYPICENO1@GMAIL.COM
Contact Country:
County Name: KINGS
EPA Region: 09
Land Type:
Receive Date: 20230111
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No

Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20230111
Handler Name: ARACELI FERRAL
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: ARACELI FERRAL
Date Became Current:
Date Ended Current:
Phone: 559-212-8984
Source Type: Implementer
Street No:
Street 1: 1178 EAST BASS STREET
Street 2:
City: HANFORD
State: CA
Country:
Zip Code: 93230

Owner/Operator Ind: Current Operator
Type: Other
Name: ARACELI FERRAL
Date Became Current:
Date Ended Current:
Phone: 559-212-8984
Source Type: Implementer
Street No:
Street 1: 1178 EAST BASS STREET
Street 2:
City: HANFORD
State: CA
Country:
Zip Code: 93230

---

6 | ***1 of1*** | ***SW*** | ***0.25 / 1,312.06*** | ***253.39 / -3*** | ***MARIA SANTIAGO 1142 E. BASS ST. HANFORD CA 93230*** | ***RCRA NON GEN***

EPA Handler ID: CAC003273091
Gen Status Universe: No Report
Contact Name: MARIA SANTIAGO
Contact Address: 1142 E. BASS ST. , , HANFORD , CA, 93230 ,
Contact Phone No and Ext: 559-577-9119
Contact Email: TUXTREMEAD20@YAHOO.COM
Contact Country:
County Name: KINGS
EPA Region: 09
Land Type:
Receive Date: 20240213
Location Latitude:
Location Longitude:

Violation/Evaluation Summary

Note: NO RECORDS: As of Apr 2024, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No

Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20240213
Handler Name: MARIA SANTIAGO
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: MARIA SANTIAGO
Date Became Current:
Date Ended Current:
Phone: 559-577-9119
Source Type: Implementer
Street No:
Street 1: 1142 E. BASS ST.
Street 2:
City: HANFORD
State: CA
Country:
Zip Code: 93230

Owner/Operator Ind: Current Owner
Type: Other
Name: MARIA SANTIAGO
Date Became Current:
Date Ended Current:
Phone: 559-577-9119
Source Type: Implementer
Street No:
Street 1: 1142 E. BASS ST.
Street 2:
City: HANFORD
State: CA
Country:
Zip Code: 93230

7	1 of3	SW	0.45 / 2,390.22	252.78 / -3	***LEE RICHMOND JR. HIGH SCHOOL*** ***1000 E FLORINDA ST*** ***HANFORD CA 93230***	***VCP***

Estor/EPA ID: 16820002
Nat Priority List: NO
Census Tract: 6031000800
Permit Renewl Lead:
Project Manager:
Acres: 2.5 ACRES
Supervisor: JOSEPH TAPIA
County: KINGS
Latitude: 36.3378693537057
Longitude: -119.628709023793
Site Code: 100350, 100350
Cleanup Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
Assembly District: 33
Senate District: 16
School District:
Office: ENGINEERING & SPECIAL PROJECTS
Public Participatn Spclst:
Special Program: VOLUNTARY AGREEMENT - STANDARD VOLUNTARY AGREEMENT
Funding: SITE PROPONENT
Site Type: VOLUNTARY AGREEMENT
APN: NONE SPECIFIED
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: SOIL
Potential Contamin of Concern:

LEAD

Site History:

In Nov. 92, the district began the process of expanding the Lee Richmond Elementary School site. As assessment of the undeveloped land (site) owned by the district adjacent to the present school identified the existence of an abandoned landfill on the site, where household rubbish and refuse was burned and spread over the central portion of the site during the 1920's -30's. Lab analyses of soil samples taken in the disturbed area indicated the presence of elevated concentrations of lead ranging from 200 mb/kg to 3,700 mg/kg. The District entered into a Voluntary Cleanup Agreement (VCA) with DTSC in April 1993. Pursuant to the VCA, the District prepared a Removal Workplan dated March 1993 and a Removal Work- plan dated May 1993. The District conducted remedial activities May 20-24, 1993 under DTSC oversight. Approximately 150 cubic yards of soil contaminated with greater than 868 mg/kg of lead was removed and replaced with clean fill soil. In addition, DTSC observed the placement of a compacted soil cover over the remediated area. The thickness of the cover ranged from 8 to 18 inches across the site, and was placed in areas of the site containing total lead concentrations in excess of 200 mg/kg. DTSC approved proposed usage of the site in July 1993. The District recorded an Agreement and Covenant to Restrict Use of Property for the deed to the remediated property in July 1993. The Covenant restricts use of the property to intrude below a level of two inches above the bottom level of the final clean soil cap placed on the property, subject to written approval by DTSC. The present use of the property by the District consists of a grassed baseball field with fencing, a chain link backstop, and team benching.

Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS
Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 90-95%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=16820002

Land Use Restrictions

Site Management Requirmnts: LAND USE COVENANT
NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/4073941886/SMBR%5FDEED%5F16820002%2Epdf
Date Recorded: 7/29/1993

Completed Activities

Title: VCA
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5015001
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 4/7/1993
Comments:

Title: Removal Action Completion Report
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&doc_id=5015000
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report
Date Completed: 5/7/1993
Comments:

Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014999
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 7/29/1993
Comments: The deed restriction is for a clay cap placed over impacted soils at the site. The cap area has been developed with a baseball diamond and athletic areas. The restrictions do not allow any addiitonal construction over the cap without prior approval by DTSC.

Title: Voluntary Cleanup Agreement Completion
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014997
Area Name:
Area Link:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Sub Area:
Sub Area Link:
Document Type: *Voluntary Cleanup Agreement Completion
Date Completed: 12/14/1995
Comments:

Title: Certification
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014998
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification
Date Completed: 11/24/1993
Comments:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
7	2 of3	SW	0.45 / 2,390.22	252.78 / -3	LEE RICHMOND JR. HIGH SCHOOL 1000 E FLORINDA ST HANFORD CA 93230	LUR

Estor/EPA ID: 16820002
Nat Priority List: NO
Census Tract: 6031000800
Permit Renewl Lead:
Project Manager:
Site Code: 100350, 100350
Cleanup Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
Assembly District: 33
Senate District: 16
School District:
Office: ENGINEERING & SPECIAL PROJECTS
Public Participatn Spclst:
Special Program: VOLUNTARY AGREEMENT - STANDARD VOLUNTARY AGREEMENT
Funding: SITE PROPONENT
Site Type: VOLUNTARY AGREEMENT
APN: NONE SPECIFIED
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: SOIL
Potential Contamin of Concern:

Acres: 2.5 ACRES
Supervisor: JOSEPH TAPIA
County: KINGS
Latitude: 36.3378693537057
Longitude: -119.628709023793

LEAD

Site History:

In Nov. 92, the district began the process of expanding the Lee Richmond Elementary School site. As assessment of the undeveloped land (site) owned by the district adjacent to the present school identified the existence of an abandoned landfill on the site, where household rubbish and refuse was burned and spread over the central portion of the site during the 1920's -30's. Lab analyses of soil samples taken in the disturbed area indicated the presence of elevated concentrations of lead ranging from 200 mb/kg to 3,700 mg/kg. The District entered into a Voluntary Cleanup Agreement (VCA) with DTSC in April 1993. Pursuant to the VCA, the District prepared a Removal Workplan dated March 1993 and a Removal Work- plan dated May 1993. The District conducted remedial activities May 20-24, 1993 under DTSC oversight. Approximately 150 cubic yards of soil contaminated with greater than 868 mg/kg of lead was removed and replaced with clean fill soil. In addition, DTSC observed the placement of a compacted soil cover over the remediated area. The thickness of the cover ranged from 8 to 18 inches across the site, and was placed in areas of the site containing total lead concentrations in excess of 200 mg/kg. DTSC approved proposed usage of the site in July 1993. The District recorded an Agreement and Covenant to Restrict Use of Property for the deed to the remediated property in July 1993. The Covenant restricts use of the property to intrude below a level of two inches above the bottom level of the final clean soil cap placed on the property, subject to written approval by DTSC. The present use of the property by the District consists of a grassed baseball field with fencing, a chain link backstop, and team benching.

Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS
Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 90-95%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=16820002

Land Use Restrictions

Site Management Requirmnts: LAND USE COVENANT

NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/4073941886/SMBR%5FDEED%5F16820002%2Epdf
Date Recorded: 7/29/1993

Completed Activities

Title: Removal Action Completion Report
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&doc_id=5015000
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report
Date Completed: 5/7/1993
Comments:

Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014999
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 7/29/1993
Comments: The deed restriction is for a clay cap placed over impacted soils at the site. The cap area has been developed with a baseball diamond and athletic areas. The restrictions do not allow any addiitonal construction over the cap without prior approval by DTSC.

Title: VCA
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5015001
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 4/7/1993
Comments:

Title: Certification
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014998
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification
Date Completed: 11/24/1993
Comments:

Title: Voluntary Cleanup Agreement Completion
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014997
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: *Voluntary Cleanup Agreement Completion
Date Completed: 12/14/1995
Comments:

7	3 of3	SW	0.45 / 2,390.22	252.78 / -3	**LEE RICHMOND JR. HIGH SCHOOL** **1000 E FLORINDA ST** **HANFORD CA 93230**	ENVIROSTOR

Estor/EPA ID: 16820002
Site Code: 100350, 100350
Assembly District: 33
Senate District: 16

Nat Priority List:	NO	***Permit Renewal Lead:***	
APN:	NONE SPECIFIED	***Public Partici Spclst:***	
Census Tract:	6031000800	***Project Manager:***	
Site Type:	VOLUNTARY AGREEMENT	***County:***	KINGS
Address Description:	1000 E FLORINDA ST	***Latitude:***	36.3378693537057
Office:	ENGINEERING & SPECIAL PROJECTS	***Longitude:***	-119.628709023793
Special Program:	VOLUNTARY AGREEMENT - STANDARD VOLUNTARY AGREEMENT	***Acres:***	2.5 ACRES
Funding:	SITE PROPONENT	***Supervisor:***	JOSEPH TAPIA

Cleanup Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY AS OF 10/29/2010
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
School District:
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: SOIL
Potential Contamin of Concern:

LEAD

Site History:

In Nov. 92, the district began the process of expanding the Lee Richmond Elementary School site. As assessment of the undeveloped land (site) owned by the district adjacent to the present school identified the existence of an abandoned landfill on the site, where household rubbish and refuse was burned and spread over the central portion of the site during the 1920's -30's. Lab analyses of soil samples taken in the disturbed area indicated the presence of elevated concentrations of lead ranging from 200 mb/kg to 3,700 mg/kg. The District entered into a Voluntary Cleanup Agreement (VCA) with DTSC in April 1993. Pursuant to the VCA, the District prepared a Removal Workplan dated March 1993 and a Removal Work- plan dated May 1993. The District conducted remedial activities May 20-24, 1993 under DTSC oversight. Approximately 150 cubic yards of soil contaminated with greater than 868 mg/kg of lead was removed and replaced with clean fill soil. In addition, DTSC observed the placement of a compacted soil cover over the remediated area. The thickness of the cover ranged from 8 to 18 inches across the site, and was placed in areas of the site containing total lead concentrations in excess of 200 mg/kg. DTSC approved proposed usage of the site in July 1993. The District recorded an Agreement and Covenant to Restrict Use of Property for the deed to the remediated property in July 1993. The Covenant restricts use of the property to intrude below a level of two inches above the bottom level of the final clean soil cap placed on the property, subject to written approval by DTSC. The present use of the property by the District consists of a grassed baseball field with fencing, a chain link backstop, and team benching.

Status: CERTIFIED O&M - LAND USE RESTRICTIONS ONLY - LAND USE RESTRICTIONS
Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 90-95%
Summary Link: https://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=16820002

Land Use Restrictions

Site Management Requirements: LAND USE COVENANT
NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/4073941886/SMBR%5FDEED%5F16820002%2Epdf
Date Recorded: 7/29/1993

Completed Activities

Title: VCA
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5015001
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 4/7/1993
Comments:

Title: Certification
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014998
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification

Date Completed: 11/24/1993
Comments:

Title: Deed Restriction / Land Use Covenant
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014999
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 7/29/1993
Comments: The deed restriction is for a clay cap placed over impacted soils at the site. The cap area has been developed with a baseball diamond and athletic areas. The restrictions do not allow any addiitonal construction over the cap without prior approval by DTSC.

Title: Removal Action Completion Report
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&doc_id=5015000
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report
Date Completed: 5/7/1993
Comments:

Title: Voluntary Cleanup Agreement Completion
Title Link: https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=16820002&enforcement_id=5014997
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: *Voluntary Cleanup Agreement Completion
Date Completed: 12/14/1995
Comments:

8	1 of1	ENE	0.50 / 2,643.76	254.22 / -2	Volpa Landfill 8526 8-1/2 Avenue Hanford CA 93230	SWF/LF

SWIS No: 16-CR-0011
Site ID: 925
EPA Fed Regist ID:
Site Op Status: Closed
Regulatory Status: Pre-regulation
Site is Archived: No
Absorbed on:
Absorbed by:
Site Inert Debris Eng Fill: No
Closed Illegal Aband: Yes
Closed Illegal Aband Cat: C1
Finance Assuran Responsible: No
Incorporated City: Hanford
Local Government: Hanford
Reporting Agency Legal Name: County of Kings
Reporting Agency Department: County Health Department
Enforcing Agency Legal Name: County of Kings
Enforcing Agency Department: County Health Department

ARB District: San Joaquin Valley Unified
SWRCB Region: Central Valley
Site Point of Cont: Angela Gomez
Site ZIP: 93230
County: Kings
Latitude: 36.34916
Longitude: -119.61111

Site Owners

Site Type: Disposal Only
Started On:
Contact Name: Mufid "Mike" Alamsi
Contact First Name: Mufid "Mike"
Contact Last Name: Alamsi
Contact Title:
Contact Email: mike@statefoods.net

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Phone: (559) 300-8638
Owner Name: Mufid Mohammed Ali Alamsi
Owner Address: 8526 8-1/2 Avenue
Owner City: Hanford
Owner State: CA
Owner Zip Code: 93230
Owner Phone:

Site Activities (Search Result)

Activity Category: Disposal
Act Opl Status: Closed
Site Name: Volpa Landfill
Activity: Solid Waste Disposal Site
Act Regulat Stat: Pre-regulations

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
9	1 of1	S	0.99 / 5,240.08	252.69 / -3	HITCHCOCK TRANSPORTATION CO. 9150 LACEY BLVD. HANFORD CA 93232	TOXIC PITS

Wds ID No: 5D161014N01
Wmu ID No: 5D161014N01-01
Region: 05F
Task: 85045
Edit Date:
Last Edit:
Status: A
Program: NONR
Half: Y
Leak: N
Number of Pits: 1
Notified:
Exa: N
Exb: N
Exc: N
Exd: N
Retro:
Si Close:
Hydrogeo Rprt Status:
Hydrogeo Reprt Due:
Hydrog Rpt Complet: 9/26/1988
Rb Staff: J.STILES
Rb Action: CLOSED/FULL COMPLIANCE

Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID

No unplottable records were found that may be relevant for the search criteria.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13 and E1527-21, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

Sites on the United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Apr 22, 2024

National Priority List - Proposed: PROPOSED NPL

Sites proposed by the United States Environmental Protection Agency (EPA), the state agency, or concerned citizens for addition to the National Priorities List (NPL) due to contamination by hazardous waste and identified by the EPA as a candidate for cleanup because it poses a risk to human health and/or the environment. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Apr 22, 2024

Deleted NPL: DELETED NPL

Sites deleted from the United States Environmental Protection Agency (EPA)'s National Priorities List. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate. Sites are represented by boundaries where available in the EPA Superfund Site Boundaries maintained by the Shared Enterprise Geodata and Services (SEGS). Site boundaries represent the footprint of a whole site, the sum of all of the Operable Units and the current understanding of the full extent of contamination; for Federal Facility sites, the total site polygon may be the Facility boundary. Where there is no polygon boundary data available for a given site, the site is represented as a point.

Government Publication Date: Apr 22, 2024

SEMS List 8R Active Site Inventory: SEMS

The U.S. Environmental Protection Agency's (EPA) Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted. This data includes SEMS sites from the List 8R Active file as well as applicable sites from the EPA's Facility Registry Service map tool.

Government Publication Date: Mar 27, 2024

SEMS List 8R Archive Sites: SEMS ARCHIVE

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. This data includes sites from the List 8R Archived site file.

Government Publication Date: Mar 27, 2024

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA). This database was provided by the United States Environmental Protection Agency (EPA). Refer to SEMS LIEN as the current data source for Superfund Liens.

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Apr 8, 2024

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites that have indicated engagement in the treatment, storage, or disposal of hazardous waste which requires a RCRA hazardous waste permit.

Government Publication Date: Apr 8, 2024

RCRA Generator List: RCRA LQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Apr 8, 2024

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Apr 8, 2024

RCRA Very Small Quantity Generators List: RCRA VSQG

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Very Small Quantity Generators (VSQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Apr 8, 2024

RCRA Non-Generators: RCRA NON GEN

RCRA Info is the U.S. Environmental Protection Agency's (EPA) comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Apr 8, 2024

RCRA Sites with Controls: RCRA CONTROLS

List of Resource Conservation and Recovery Act (RCRA) facilities with institutional controls in place. RCRA gives the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Government Publication Date: Apr 8, 2024

Federal Engineering Controls-ECs: FED ENG

List of Engineering controls (ECs) made availabe by the United States Environmental Protection Agency (EPA). ECs encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. The EC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Apr 22, 2024

Federal Institutional Controls- ICs: FED INST

List of Institutional controls (ICs) made available by the United States Environmental Protection Agency (EPA). ICs are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site. The IC listing includes remedy component data from Superfund decision documents for applicable sites on the final or deleted on the National Priorities List (NPL); and sites with a Superfund Alternative Approach (SAA) Agreement in place. The only sites included that are not on the NPL; proposed for NPL; or removed from proposed NPL, are those with an SAA Agreement in place.

Government Publication Date: Apr 22, 2024

Land Use Control Information System: LUCIS

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

Government Publication Date: Sep 1, 2006

Institutional Control Boundaries at NPL sites: NPL IC

Boundaries of Institutional Control areas at sites on the United States Environmental Protection Agency (EPA)'s National Priorities List, or Proposed or Deleted, made available by the EPA's Shared Enterprise Geodata and Services (SEGS). United States Environmental Protection Agency (EPA)'s National Priorities List of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. Institutional controls are non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy.

Government Publication Date: Apr 22, 2024

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports made available by the United States Coast Guard National Response Center (NRC). The NRC fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. These data contain initial incident data that has not been validated or investigated by a federal/state response agency.

Government Publication Date: Apr 28, 2024

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This data is provided by the United States Environmental Protection Agency (EPA) and includes Brownfield sites from the Cleanups in My Community (CIMC) web application.

Government Publication Date: Feb 7, 2024

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Facility Response Plan: FRP

This listing contains facilities that have submitted Facility Response Plans (FRPs) to the U.S. Environmental Protection Agency (EPA). Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit FRPs. Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments. This listing includes FRP facilities from an applicable EPA FOIA file and Homeland Infrastructure Foundation-Level Data (HIFLD) data file.

Government Publication Date: Jan 9, 2024

Delisted Facility Response Plans: DELISTED FRP

Facilities that once appeared in - and have since been removed from - the list of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Jan 9, 2024

Historical Gas Stations: HIST GAS STATIONS

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

Government Publication Date: Jul 1, 1930

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Feb 28, 2024

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

A list of petroleum product and crude oil rail terminals from the U.S. Energy Information Administration (EIA), as well as petroleum terminals sourced from the Federal Communications Commission Data hosted by the Homeland Infrastructure Foundation-Level Database. Data includes operable bulk petroleum product terminals with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil with activity between 2017 and 2018. EIA petroleum product terminal data comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings.

Government Publication Date: Jun 6, 2024

LIEN on Property: SEMS LIEN

The U.S. Environmental Protection Agency's (EPA) Superfund Enterprise Management System (SEMS) provides Lien details on applicable properties, such as the Superfund lien on property activity, the lien property information, and the parties associated with the lien.

Government Publication Date: Mar 27, 2024

Superfund Decision Documents: SUPERFUND ROD

This database contains a list of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include completed Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD) for active and archived sites stored in the Superfund Enterprise Management System (SEMS), along with other associated memos and files. This information is maintained and made available by the U.S. Environmental Protection Agency.

Government Publication Date: Mar 27, 2024

Formerly Utilized Sites Remedial Action Program: DOE FUSRAP

The U.S. Department of Energy (DOE) established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

Government Publication Date: Mar 4, 2017

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Jun 25, 2024

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Jun 25, 2024

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Jun 25, 2024

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: May 10, 2024

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Waste Management Unit Database: WMUD

The Waste Management Unit Database System tracks and inventories waste management units. CCR Title 27 contains criteria stating that Waste Management Units are classified according to their ability to contain wastes. Containment shall be determined by geology, hydrology, topography, climatology, and other factors relating to the ability of the Unit to protect water quality. Water Code Section 13273.1 requires that operators submit a water quality solid waste assessment test (SWAT) report to address leak status. The WMUDS was last updated by the State Water Resources control board in 2000.

Government Publication Date: Jan 1, 2000

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Jun 25, 2024

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Construction and Demolition Debris Recyclers: C&D DEBRIS RECY

This listing of Construction and Demolition Debris Recyclers is maintained by the California Intergrated Waste Management Board-common C&D materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development.

Government Publication Date: Jun 20, 2018

Recycling Centers: RECYCLING

This list of Certified Recycling Centers that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Apr 8, 2024

Listing of Certified Processors: PROCESSORS

This list of Certified Processors that are operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Jul 9, 2024

Listing of Certified Dropoff, Collection, and Community Service Programs: CONTAINER RECY

This list of Certified Dropoff, Collection, and Community Service Programs (non-buyback) operating under the state of California's Beverage Container Recycling Program is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Apr 17, 2024

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Mar 15, 2024

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Mar 15, 2024

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Apr 4, 2024

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Jun 11, 2024

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

This listing includes Proposed Closure of Underground Storage Tank (UST) Cases which are being considered for closure by either the State Water Resources Control Board at a Future Board Meeting or the Executive Director that have been posted for a 60-day public comment period, and Closure of UST Cases with Closure Denials and Approved Orders. The lists are provided by the California Water Boards.

Government Publication Date: Apr 4, 2024

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Statewide Environmental Evaluation and Planning System: UST SWEEPS

The Statewide Environmental Evaluation and Planning System (SWEEPS) is a historical listing of active and inactive underground storage tanks made available by the California State Water Resources Control Board (SWRCB).

Government Publication Date: Oct 1, 1994

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

SWRCB Historical Aboveground Storage Tanks: AST SWRCB

A list of aboveground storage tanks made available by the California State Water Resources Control Board (SWRCB). Effective January 1, 2008, the Certified Unified Program Agencies (CUPAs) are vested with the responsibility and authority to implement the Aboveground Petroleum Storage Act (APSA).

Government Publication Date: Dec 1, 2007

Oil and Gas Facility Tanks: TANK OIL GAS

Locations of oil and gas tanks that fall under the jurisdiction of the Geologic Energy Management Division of the California Department of Conservation (CalGEM) (CCR 1760). CalGEM was formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR).

Government Publication Date: May 9, 2024

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Jun 24, 2024

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Apr 25, 2024

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Apr 25, 2024

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Jun 25, 2024

CALSITES Database: CALSITES

This historical database was maintained by the Department of Toxic Substance Control (DTSC) for more than a decade. CALSITES contains information on Brownfield properties with confirmed or potential hazardous contamination. In 2006, DTSC introduced EnviroStor as the latest Brownfields site database.

Government Publication Date: May 1, 2004

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Feb 18, 2021

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Mar 15, 2024

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Jun 25, 2024

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Mar 15, 2024

Delisted Cleanup Program Sites: DELISTED CLEANUP

A list of Cleanup Program sites which were once included - and have since been removed from - the list of Cleanup Program Sites in GeoTracker. GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.
Government Publication Date: Mar 15, 2024

Delisted County Records: DELISTED COUNTY
Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.
Government Publication Date: Jun 24, 2024

Tribal

Leaking Underground Storage Tanks on Tribal/Indian Lands: INDIAN LUST
This list of leaking underground storage tanks (LUSTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: May 7, 2024

Underground Storage Tanks on Tribal/Indian Lands: INDIAN UST
This list of underground storage tanks (USTs) on Tribal/Indian Lands in Region 9, which includes California, is made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: May 7, 2024

Delisted Tribal Leaking Storage Tanks: DELISTED INDIAN LST
Leaking Underground Storage Tank (LUST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian LUST lists made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: May 7, 2024

Delisted Tribal Underground Storage Tanks: DELISTED INDIAN UST
Underground Storage Tank (UST) facilities which once appeared on - and have since been removed from - the Regional Tribal/Indian UST lists made available by the United States Environmental Protection Agency (EPA).
Government Publication Date: May 7, 2024

County

Kings County - Underground Storage Tanks: UST KINGS
List of Underground Storage Tanks made avaiable by Kings County Environmental Health Services.
Government Publication Date: Dec 3, 2020

Kings County - CUPA Facility List: CUPA KINGS
A list of facilities associated with various Certified Unified Program Agency (CUPA) programs in Kings County. This list is made available by Kings County Department of Public Health which is appointed as CUPA for the county.
Government Publication Date: Dec 3, 2020

Additional Environmental Record Sources

Federal

PFAS Greenhouse Gas Emissions Data: PFAS GHG

The U.S. Environmental Protection Agency's Greenhouse Gas Reporting Program (GHGRP) collects Greenhouse Gas (GHG) data from large emitting facilities (25,000 metric tons of carbon dioxide equivalent (CO2e) per year), and suppliers of fossil fuels and industrial gases that results in GHG emissions when used. Includes GHG emissions data for facilities that emit or have emitted since 2010 chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures by DSSTox. PFAS emissions data has been identified for facilities engaged in the following industrial processes: Aluminum Production (GHGRP Subpart F), HCFC-22 Production and HFC-23 Destruction (Subpart O), Electronics Manufacturing (Subpart I), Fluorinated Gas Production (Subpart L), Magnesium Production (Subpart T), Electrical Transmission and Distribution Equipment Use (Subpart DD), and Manufacture of Electric Transmission and Distribution Equipment (Subpart SS). Over time, other industrial processes with required GHGRP reporting may include PFAS emissions data and the list of reportable gases may change over time.
Government Publication Date: May 9, 2024

On-Scene Coordinator Response Sites: OSC RESPONSE

This list of On-Scene Coordinator (OSC) Response Sites is provided by the U.S. Environmental Protection Agency (EPA). OSCs are the federal officials responsible for monitoring or directing responses to all oil spills and hazardous substance releases reported to the federal government. OSCs coordinate all federal efforts with, and provide support and information to local, state, and regional response communities. An OSC is an agent of either EPA or the U.S. Coast Guard (USCG), depending on where the incident occurs. EPA's OSCs have primary responsibility for spills and releases to inland areas and waters. USCG OSCs have responsibility for coastal waters and the Great Lakes. In general, an OSC has the following key responsibilities during and after a response: Assessment, Monitoring, Response Assistance, and Evaluation.
Government Publication Date: Apr 4, 2024

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the U.S. Environmental Protection Agency (EPA).
Government Publication Date: Feb 9, 2024

Toxics Release Inventory (TRI) Program: TRIS

The U.S. Environmental Protection Agency's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of toxic chemicals from U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. There are currently 770 individually listed chemicals and 33 chemical categories covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual reporting forms for each chemical. Note that the TRI chemical list does not include all toxic chemicals used in the U.S. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment. This database includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.
Government Publication Date: Sep 20, 2023

PFOA/PFOS Contaminated Sites: PFAS NPL

This list of Superfund Sites with Per- and Polyfluoroalkyl Substances (PFAS) detections is made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data, previously the list was obtained by EPA FOIA requests. EPA's Office of Land and Emergency Management and EPA Regional Offices maintain what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment. Limitations: Detections of PFAS at National Priorities List (NPL) sites do not mean that people are at risk from PFAS, are exposed to PFAS, or that the site is the source of the PFAS. The information in the Superfund NPL and Superfund Alternative Agreement (SAA) PFAS detection site list is years old and may not be accurate today. Site information such as site name, site ID, and location has been confirmed for accuracy; however, PFAS-related information such as media sampled, drinking water being above the health advisory, or mitigation efforts has not been verified. For Federal Facilities data, the other Federal agencies (OFA) are the lead agency for their data and provided them to EPA.
Government Publication Date: Jun 20, 2024

Federal Agency Locations with Known or Suspected PFAS Detections: PFAS FED SITES

List of Federal agency locations with known or suspected detections of Per- and Polyfluoroalkyl Substances (PFAS), made available by the U.S. Environmental Protection Agency (EPA) in their PFAS Analytic Tools data. EPA outlines that these data are gathered from several federal entities, such as the Federal Superfund program, Department of Defense (DOD), National Aeronautics and Space Administration, Department of Transportation, and Department of Energy. The dates this data was extracted for the PFAS Analytic Tools range from 2022 to 2024. Sites on this list do not necessarily reflect the source/s of PFAS contamination and detections do not indicate level of risk or human exposure at the site. Agricultural notifications in this data are limited to DOD sites only. At this time, the EPA is aware that this list is not comprehensive of all Federal agencies.
Government Publication Date: Apr 1, 2024

SSEHRI PFAS Contamination Sites: PFAS SSEHRI

This PFAS Contamination Site Tracker database is compiled by the Social Science Environmental Health Research Institute (SSEHRI) at Northeastern University. According to the SSEHRI, the database records qualitative and quantitative data from each known site of PFAS contamination, including timeline of discovery, sources, levels, health impacts, community response, and government response. The goal of this database is to compile information and support public understanding of the rapidly unfolding issue of PFAS contamination. All data presented was extracted from government websites, news articles, or publicly available documents, and this is cited in the tracker. Locations for the Known PFAS Contamination Sites are sourced from the PFAS Sites and Community Resources Map, credited to the Northeastern University's PFAS Project Lab, Silent Spring Institute, and the PFAS-REACH team. Disclaimer: The source conveys the data undergoes regular updates as new information becomes available, some sites may be missing and/or contain information that is incorrect or outdated, as well as their information represents all contamination sites SSEHRI is aware of, not all possible contamination sites. This data is not intended to be used for legal purposes. Access the following source link for the most current information: https://pfasproject.com/pfas-sites-and-community-resources/

Government Publication Date: May 19, 2023

National Response Center PFAS Spills: ERNS PFAS

This Per- and Poly-Fluoroalkyl Substances (PFAS) Spills dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The National Response Center (NRC), operated by the U.S. Coast Guard, is the designated federal point of contact for reporting all oil, chemical, and other discharges into the environment, for the United States and its territories. This dataset contains NRC spill information from 1990 to the present that is restricted to records associated with PFAS and PFAS-containing materials. Incidents are filtered to include only records with a "Material Involved" or "Incident Description" related to Aqueous Film Forming Foam (AFFF). The keywords used to filter the data included "AFFF," "Fire Fighting Foam," "Aqueous Film Forming Foam," "Fire Suppressant Foam, "PFAS," "PERFL," "PFOA," "PFOS," and "Genx." Limitations: The data from the NRC website contains initial incident data that has not been validated or investigated by a federal/state response agency. Keyword searches may misidentify some incident reports that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS spills/release incidents.

Government Publication Date: Apr 17, 2024

PFAS NPDES Discharge Monitoring: PFAS NPDES

This list of National Pollutant Discharge Elimination System (NPDES) permitted facilities with required monitoring for Per- and Polyfluoroalkyl (PFAS) Substances is made available via the U.S. Environmental Protection Agency (EPA)'s PFAS Analytic Tools. Any point-source wastewater discharger to waters of the United States must have a NPDES permit, which defines a set of parameters for pollutants and monitoring to ensure that the discharge does not degrade water quality or impair human health. This list includes NPDES permitted facilities associated with permits that monitor for Per- and Polyfluoroalkyl Substances (PFAS), limited to the years 2007 - present. EPA further advises the following regarding these data: currently, fewer than half of states have required PFAS monitoring for at least one of their permittees, and fewer states have established PFAS effluent limits for permittees. For states that may have required monitoring, some reporting and data transfer issues may exist on a state-by-state basis.

Government Publication Date: May 6, 2024

Perfluorinated Alkyl Substances (PFAS) from Toxic Release Inventory: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a per- or polyfluoroalkyl (PFAS) substance included in the U.S. Environmental Protection Agency's (EPA) consolidated PFAS Master List of PFAS Substances. Encompasses Toxics Release Inventory records included in the EPA PFAS Analytic Tools. The EPA's TRI database currently tracks information on disposal or releases of 770 individually listed toxic chemicals and 33 chemical categories from thousands of U.S. facilities and details about how facilities manage those chemicals through recycling, energy recovery, and treatment. This listing includes TRI Reporting Data for calendar years 1987 through 2021 and Preliminary Data for 2022.

Government Publication Date: Sep 20, 2023

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

PFAS TSCA Manufacture and Import Facilities: PFAS TSCA

The U.S. Environmental Protection Agency (EPA) issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. This list is specific only to TSCA Manufacture and Import Facilities with reported per- and poly-fluoroalkyl (PFAS) substances. Data file is sourced from EPA's PFAS Analytic Tools TSCA dataset which includes CDR/Inventory Update Reporting data from 1998 up to 2020. Disclaimer: This data file includes production and importation data for chemicals identified in EPA's CompTox Chemicals Dashboard list of PFAS without explicit structures and list of PFAS structures in DSSTox. Note that some regulations have specific chemical structure requirements that define PFAS differently than the lists in EPA's CompTox Chemicals Dashboard. Reporting information on manufactured or imported chemical substance amounts should not be compared between facilities, as some companies claim Chemical Data Reporting Rule data fields for PFAS information as Confidential Business Information.

Government Publication Date: Jan 5, 2023

PFAS Waste Transfers from RCRA e-Manifest : PFAS E-MANIFEST

This Per- and Poly-Fluoroalkyl Substances (PFAS) Waste Transfers dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. Every shipment of hazardous waste in the U.S. must be accompanied by a shipment manifest, which is a critical component of the cradle-to-grave tracking of wastes mandated by the Resource Conservation and Recovery Act (RCRA). According to the EPA, currently no Federal Waste Code exists for any PFAS compounds. To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: • PFAS • PFOA • PFOS • PERFL • AFFF • GENX • GEN-X (plus the Vermont state-specific waste codes). Limitations: Amount or concentration of PFAS being transferred cannot be determined from the manifest information. Keyword searches may misidentify some manifest records that do not contain PFAS. This dataset should also not be considered to be exhaustive of all PFAS waste transfers.

Government Publication Date: Apr 29, 2024

PFAS Industry Sectors: PFAS IND

This Per- and Poly-Fluoroalkyl Substances (PFAS) Industry Sectors dataset is made available via the U.S. Environmental Protection Agency's (EPA) PFAS Analytic Tools. The EPA developed the dataset from various sources that show which industries may be handling PFAS including: EPA's Enforcement and Compliance History Online (ECHO) records restricted to potential PFAS-handling industry sectors; ECHO records for Fire Training Sites identified where fire-fighting foam may have been used in training exercises; and 14 CFR Part 139 Airports compiled from historic and current records from the FAA Airport Data and Information Portal. Since July 2006, all certificated Part 139 Airports are required to have fire-fighting foam onsite that meet certain military specifications, which to date have been fluorinated (Aqueous Film Forming Foam). Limitations: Inclusion in this dataset does not indicate that PFAS are being manufactured, processed, used, or released by the facility. Listed facilities potentially handle PFAS based on their industrial profile, but are unconfirmed by the EPA. Keyword searches in ECHO for Fire Training sites may misidentify some facilities and should not be considered to be an exhaustive list of fire training facilities in the U.S.

Government Publication Date: Jul 1, 2024

Hazardous Materials Information Reporting System: HMIRS

The Hazardous Materials Incident Reporting System (HMIRS) database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Government Publication Date: May 29, 2024

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department"), Drug Enforcement Administration (DEA), provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Nov 30, 2023

Toxic Substances Control Act: TSCA

The U.S. Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule. The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI). EPA CDR collections occur approximately every four years and reporting requirements change per collection.

Government Publication Date: May 12, 2022

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the site cleanup process, the U.S. Environmental Protection Agency (EPA) conducts a search to find the Potentially Responsible Parties (PRPs). The EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site. This listing contains PRPs, Noticed Parties, at sites in the EPA's Superfund Enterprise Management System (SEMS).

Government Publication Date: Apr 22, 2024

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin. Since 2017, the SCRD no longer maintains this data, refer to applicable state source data where available.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The Integrated Compliance Information System (ICIS) database contains integrated enforcement and compliance information across most of U.S. Environmental Protection Agency's (EPA) programs. The vision for ICIS is to replace EPA's independent databases that contain enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions and a subset of the Permit Compliance System (PCS), which supports the National Pollutant Discharge Elimination System (NPDES). This information is maintained by the EPA Headquarters and at the Regional offices. A future release of ICIS will completely replace PCS and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities that support compliance and enforcement programs, including incident tracking, compliance assistance, and compliance monitoring.

Government Publication Date: Apr 13, 2024

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) data as made available by the U.S. Environmental Protection Agency (EPA), sourced from the ECHO Exporter file. The EPA tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: May 5, 2024

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: May 5, 2024

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DOD) is responsible for an environmental restoration. The FUDS Annual Report to Congress (ARC) is published by the U.S. Army Corps of Engineers (USACE). This data is compiled from the USACE's Geospatial FUDS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) FUDS dataset which applies to the Fiscal Year 2021 FUDS Inventory.

Government Publication Date: May 15, 2023

FUDS Munitions Response Sites: FUDS MRS

Boundaries of Munitions Response Sites (MRS), published with the Formerly Used Defense Sites (FUDS) Annual Report to Congress (ARC) by the U.S. Army Corps of Engineers (USACE). An MRS is a discrete location within a Munitions response area (MRA) that is known to require a munitions response. An MRA means any area on a defense site that is known or suspected to contain unexploded ordnance (UXO), discarded military munitions (DMM), or munitions constituents (MC). This data is compiled from the USACE's Geospatial MRS data layers and Homeland Infrastructure Foundation-Level Data (HIFLD) MRS dataset.

Government Publication Date: May 15, 2023

Former Military Nike Missile Sites: FORMER NIKE

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites. During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

Government Publication Date: Dec 2, 1984

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

This list of flagged pipeline incidents is made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types. Accidents reported on hazardous liquid gravity lines (§195.13) and reporting-regulated-only hazardous liquid gathering lines (§195.15) and incidents reported on Type R gas gathering (§192.8(c)) are not included in the flagged incident file data.

Government Publication Date: May 6, 2024

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: May 11, 2021

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) is provided by the United States Department of Labor, Mine Safety and Health Administration (MSHA). This file, which was originally created in the 1970's, contained many Mine-IDs that were invalid. MSHA removes invalid IDs from the MIF upon discovery. MSHA applicable data includes the following: all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970; mine addresses for all mines in the database except for Abandoned mines prior to 1998 from MSHA's legacy system (addresses may or may not correspond with the physical location of the mine itself); violations that have been assessed penalties as a result of MSHA inspections beginning on 1/1/2000; and violations issued as a result of MSHA inspections conducted beginning on 1/1/2000.

Government Publication Date: Feb 5, 2024

Surface Mining Control and Reclamation Act Sites: SMCRA

This inventory of land and water impacted by past mining (primarily legacy coal mining operations) is maintained by the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSMRE), as it provides information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This inventory contains information on the type and extent of Abandoned Mine Land (AML) Problems, as well as information on the cost associated with the reclamation of those problems. The data is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed. Disclaimer: Per the OSMRE, States and tribes who enter their data into e-AMLIS (AML Inventory System) may truncate their latitude and longitude so the precise location of usually dangerous AMLs is not revealed in an effort to protect the public from searching for these AMLs, most of which are on private property. If more precise location information is needed, please contact the applicable state/tribe of interest.

Government Publication Date: May 20, 2024

Mineral Resource Data System: MRDS

The Mineral Resource Data System (MRDS) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS. The USGS has ceased systematic updates of the MRDS database with their focus more recently on deposits of critical minerals while providing a well-documented baseline of historical mine locations from USGS topographic maps.

Government Publication Date: Mar 15, 2016

DOE Legacy Management Sites: LM SITES

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) currently manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The LM manages sites with diverse regulatory drivers (statutes or programs that direct cleanup and management requirements at DOE sites) or as part of internal DOE or congressionally-recognized programs, such as but not limited to: Formerly Utilized Sites Remedial Action Program (FUSRAP), Uranium Mill Tailings Radiation Control Act (UMTRCA Title I, Tile II), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Decontamination and Decommissioning (D&D), Nuclear Waste Policy Act (NWPA). This site listing includes data exported from the DOE Office of LM's Geospatial Environmental Mapping System (GEMS). GEMS Data disclaimer: The DOE Office of LM makes no representation or warranty, expressed or implied, regarding the use, accuracy, availability, or completeness of the data presented herein.

Government Publication Date: Dec 12, 2023

Alternative Fueling Stations: ALT FUELS

This list of alternative fueling stations is sourced from the Alternative Fuels Data Center (AFDC). The U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy launched the AFDC in 1991 as a repository for alternative fuel vehicle performance data, which provides a wealth of information and data on alternative and renewable fuels, advanced vehicles, fuel-saving strategies, and emerging transportation technologies. The data includes Biodiesel (B20 and above), Compressed Natural Gas (CNG), Electric, Ethanol (E85), Hydrogen, Liquefied Natural Gas (LNG), Propane (LPG), and Renewable Diesel (R20 and above) fuel type locations.

Government Publication Date: Apr 30, 2024

Superfunds Consent Decrees: CONSENT DECREES

This list of Superfund consent decrees is provided by the Department of Justice, Environment & Natural Resources Division (ENRD) through a Freedom of Information Act (FOIA) applicable file. This listing includes Cases filed since 2010 limited to the following: Consent Decrees for CERCLA or Superfund Sites filed and/or as proposed within the ENRD's Case Management System (CMS); and applicable ENRD's Environmental Defense Section (EDS) CERCLA Cases with "Consent" in History Note. CMS may not reflect the latest developments in a case, nor can the agency guarantee the accuracy of the data. ENRD Disclaimer: Congress excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA; response is limited to those records that are subject to the requirements of the FOIA; however, this should not be taken as an indication that excluded records do, or do not, exist.

Government Publication Date: Jun 26, 2024

Air Facility System: AFS

This EPA retired Air Facility System (AFS) dataset contains emissions, compliance, and enforcement data on stationary sources of air pollution. Regulated sources cover a wide spectrum; from large industrial facilities to relatively small operations such as dry cleaners. AFS does not contain data on facilities that are solely asbestos demolition and/or renovation contractors, or landfills. ECHO Clean Air Act data from AFS are frozen and reflect data as of October 17, 2014; the EPA retired this system for Clean Air Act stationary sources and transitioned to ICIS-Air.

Government Publication Date: Oct 17, 2014

Registered Pesticide Establishments: SSTS

This national list of active EPA-registered foreign and domestic pesticide and/or device-producing establishments is based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that each producing establishment must place its EPA establishment number on the label or immediate container of each pesticide, active ingredient or device produced. An EPA establishment number on a pesticide product label identifies the EPA registered location where the product was produced. The list of establishments is made available by the U.S. Environmental Protection Agency (EPA).

Government Publication Date: Feb 29, 2024

Polychlorinated Biphenyl (PCB) Transformers: PCBT

Locations of Transformers Containing Polychlorinated Biphenyls (PCBs) registered with the United States Environmental Protection Agency. PCB transformer owners must register their transformer(s) with EPA. Although not required, PCB transformer owners who have removed and properly disposed of a registered PCB transformer may notify EPA to have their PCB transformer de-registered. Data made available by EPA.

Government Publication Date: Oct 15, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: May 23, 2024

State

PFAS Sampling Locations: PFAS SAMPLING

This data is sourced from the State Water Board's GeoTracker Per- and Polyfluoroalkyl Substances (PFAS) Map tool which contains individual sampling points (i.e., soil boring, groundwater monitoring well, drinking water well for municipal drinking water systems, etc.) or a site location with PFAS analytical data. Includes analytical results that are finalized and submitted electronically by the Responsible Parties via GeoTracker's Electronic Submittal of Information Portal, and after it's accepted by a Regional Water Quality Control Board.

Government Publication Date: Jun 28, 2024

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Dec 20, 2021

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Jan 31, 2022

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Jan 31, 2022

PFAS GeoTracker Cleanup Sites: PFAS GT CLEANUPS

A list of applicable cleanup sites from the State Water Resources Control Board's (SWRCB) GeoTracker data management system where one or more of the potential contaminants of concern are identified in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Mar 15, 2024

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Jan 7, 2024

PFAS Investigations: PFAS INVEST

This list of potential Per- and Polyfluoroalkyl Substance (PFAS) sites is compiled from the California State Water Resources Control Board's (SWRCB) PFAS Investigations Map tool. The SWRCB issued investigative orders, per California Water Code (CWC) Section 13267 and/or 13383, to these sites. Orders were also issued to the public water systems to sample wells in the vicinity of these locations. Military facilities have been identified by the Department of Defense (DOD) as part of their efforts to investigate PFAS per the Defense Environmental Restoration Program (DERP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The data includes locations for Airports, Chrome Plating Facilities, Landfills, Publicly Owned Treatment Works, Refineries and Bulk Terminals, DOD Facilities, and Monitored Drinking Water Wells being investigated for potential PFAS.

Government Publication Date: Jan 23, 2024

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Mar 15, 2023

Toxic Pit Cleanup Act Sites: TOXIC PITS

The Toxic Pits Cleanup Act (TPCA) list identifies sites suspected of containing hazardous substances where cleanup has not yet been completed. This list was maintained by the State Water Resources Control Board (SWRCB), is not longer maintained, and updates are not planned.

Government Publication Date: Jul 1, 1995

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked by the California Department of Toxic Substance Control's (DTSC) EnviroStor data management system.

Government Publication Date: Nov 23, 2023

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Jun 25, 2024

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Apr 23, 2024

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Handlers from Hazardous Waste Manifest Data: HAZNET

A list of handlers not otherwise classified as Treatment, Storage, Disposal facilities (TSDF) or generators from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Oct 24, 2016

Generators from Hazardous Waste Manifest Data: HAZ GEN

List of handlers listed as having generated waste from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

TSDF from Hazardous Waste Manifest Data: HAZ TSD

List of Treatment, Storage, and Disposal Facilities (TSDFs) from the facilities and manifests data made available by the California Department of Toxic Substances Control (DTSC) in their Hazardous Waste Tracking System (HWTS).

Government Publication Date: Dec 31, 2017

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

DTSC Registered Hazardous Waste Transporters: HW TRANSPORT

The California Department of Toxic Substances Control (DTSC) maintains this list of Registered Hazardous Waste Transporters.

Government Publication Date: Apr 15, 2024

Registered Waste Tire Haulers: WASTE TIRE

This list of registered waste tire haulers is maintained by the California Department of Resources Recycling and Recovery.

Government Publication Date: Mar 25, 2024

California Medical Waste Management Program Facility List: MEDICAL WASTE

This list of Medical Waste Management Program Facilities is maintained by the California Department of Public Health. The Medical Waste Management Program (MWMP) regulates the generation, handling, storage, treatment, and disposal of medical waste by providing oversight for the implementation of the Medical Waste Management Act (MWMA). The MWMP permits and inspects all medical waste off-site treatment facilities, medical waste transporters, and medical waste transfer stations. This list contains transporters, treatment, and transfer facilities.

Government Publication Date: Apr 15, 2024

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Dec 6, 2021

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Apr 25, 2024

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Mar 15, 2024

Mines Listing: MINE

This list includes mine site locations extracted from the Mines Online database, maintained by the California Department of Conservation. Mines Online (MOL) is an interactive web map designed with GIS features that provide information such as the mine name, mine status, commodity sold, location, and other mine specific data. Please note: Mine location information is provided to assist experts in determining the location of mine operators in accordance with California Civil Code section 1103.4 and reflects information reported by mine operators in annual reports provided under Public Resources Code section 2207. While the Division of Mine Reclamation (DMR) attempts to populate MOL with accurate location information, the DMR cannot guarantee the accuracy of operator reported location information.

Government Publication Date: Jun 16, 2023

Recorded Environmental Cleanup Liens: LIEN

The California Department of Toxic Substance Control (DTSC) maintains this list of liens placed upon real properties. A lien is utilized by the DTSC to obtain reimbursement from responsible parties for costs associated with the remediation of contaminated properties.

Government Publication Date: Dec 18, 2023

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Mar 15, 2024

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program.

Government Publication Date: Dec 31, 2021

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jan 19, 2021

Tribal

No Tribal additional environmental record sources available for this State.

County

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

EXHIBIT C-2

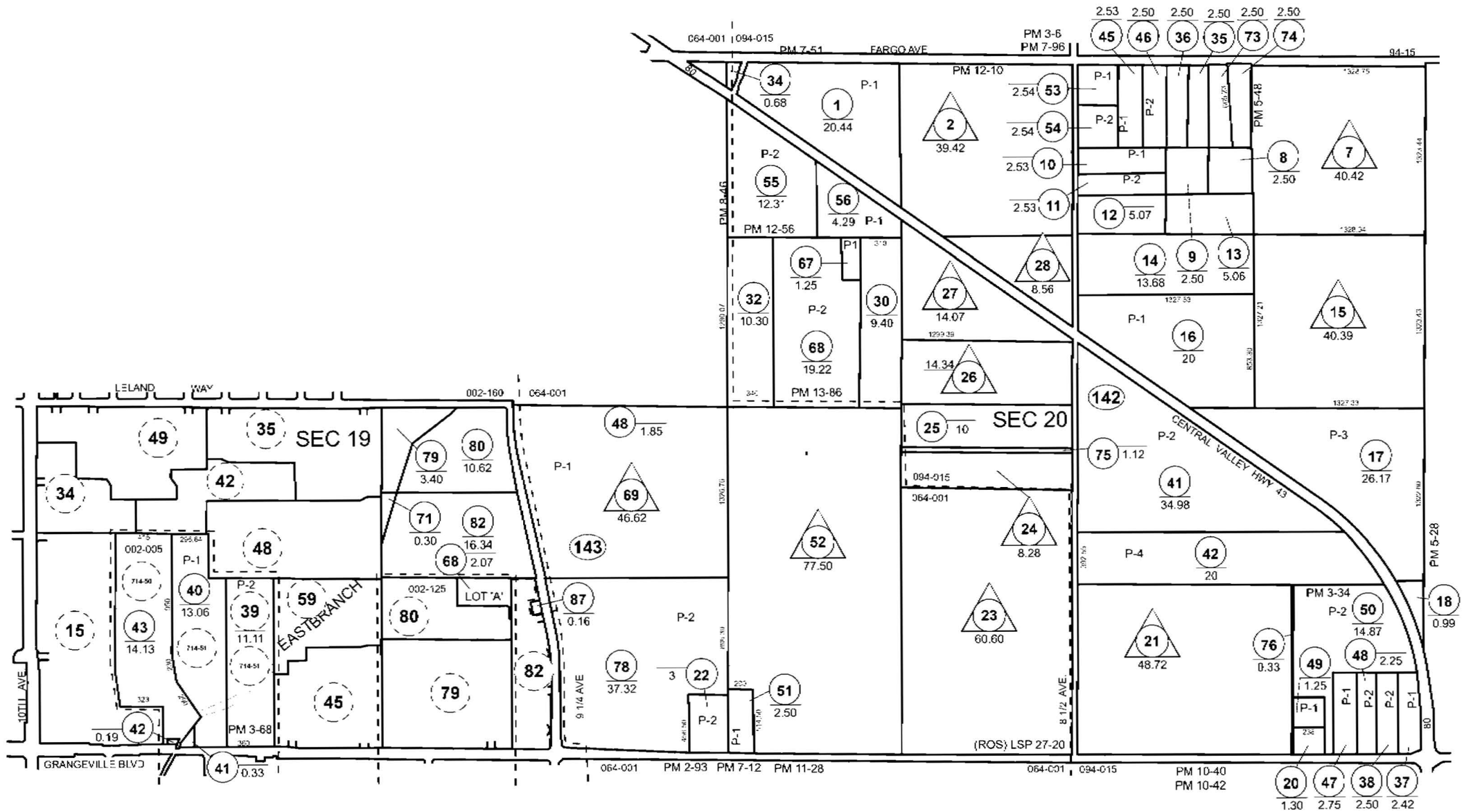
GENERAL PUBLIC RECORDS

THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.
IT IS NOT TO BE CONSTRUED AS PORTRAYING
LEGAL OWNERSHIP OF DIVISIONS OF LAND FOR
PURPOSES OF ZONING OR SUBDIVISION LAW.
AUGUST 2023

KINGS COUNTY ASSESSOR'S MAP

SEC 20 & S 1/2 SEC 19-18-22

14-14



1" = 800'

1"

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APPENDIX D

INTERVIEW RECORDS

RECORD OF COMMUNICATION						
Project Name: Proposed Development			Location (city): Hanford, California			
Communication with: Eddie Warmerdam						
Of: Owner of north Subject Property parcel						
Location: Fresno, CA			Phone: 559 308-0884			
Communication via	**X**	Telephone		Letter		In Person
Recorded By: Paul Humphrey			Of: Paul Humphrey, EP			
At: (time): 0930			On (date): July 16, 2024			
Re: Property Use						
Summary of Communication: Mr. Warmerdam was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products. Mr. Warmerdam indicated that his family has owned the north Subject Property since the late 1980s and have leased farmed the south Subject Property parcel most of that time and use has always been farmed land.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development			Location (city): Hanford, California			
Communication with: Clerk						
Of: Kings County Department of Environmental Health						
Location: Hanford, CA			Phone: 559-584-1401			
Communication via	**X**	Telephone		Letter		In Person
Recorded By: Paul Humphrey			Of: Paul Humphrey, EP			
At: (time): 1030			On (date): July 26, 2024			
Re: Records						
Summary of Communication: No records were identified.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development		Location (city): Hanford, California				
Communication with: Clerk						
Of: Hanford Planning and Development Department						
Location: Hanford, CA		Phone: 559				
Communication via		Telephone		Letter	**X**	In Person
Recorded By: Paul Humphrey		Of: Paul Humphrey, EP				
At: (time): 1400		On (date): July 26, 2024				
Re: Records						
Summary of Communication: No records of land use limitations associated with the Subject Property.						
Conclusions/Required Action/Follow-up: None						

RECORD OF COMMUNICATION						
Project Name: Proposed Development				Location (city): Hanford, California		
Communication with: Receptionist						
Of: City of Hanford Fire						
Location: Hanford, CA				Phone: 559 621-4199		
Communication via	**X**	Telephone		Letter		In Person
Recorded By: Paul Humphrey				Of: Paul Humphrey, EP		
At: (time): 1445				On (date): July 26, 2024		
Re: Records						
Summary of Communication: According to the clerk, no record was identified for the Subject Property and the area is under the jurisdiction of the Kings County Department of Environmental Health.						
Conclusions/Required Action/Follow-up: None						

APPENDIX E

CLIENT PROVIDED DOCUMENTATION

NOT APPLICABLE FOR THIS REPORT

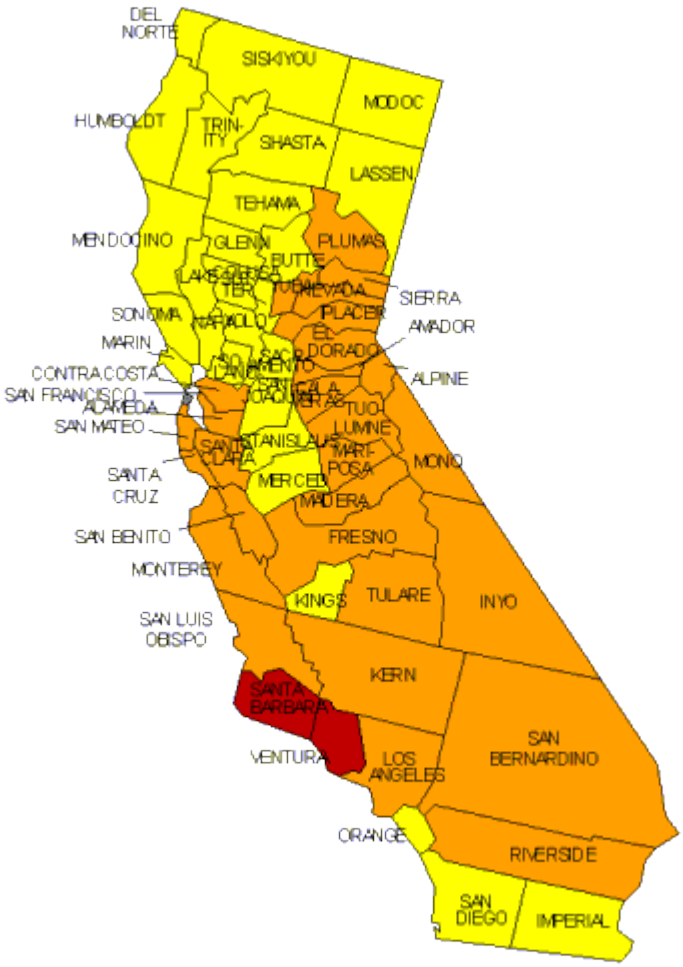
APPENDIX F

OTHER SUPPORTING DOCUMENTATION

Zone 1 Highest Potential (greater than 4 pCi/L)

Zone 2 Moderate Potential (from 2 to 4 pCi/L)

Zone 3 Low Potential (less than 2 pCi/L)



PAUL HUMPHREY, EP
7402 E. CLINTON AVENUE
FRESNO, CALIFORNIA 93737
(559) 977-9813

RADON MAP

N↑

APPENDIX G

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Paul J. Humphrey, REPA, CAC

Education:	College of the Sequoias, Visalia, California
	Associate of Science in Biology, 1994
Licenses/Registrations:	Registered Environmental Property Assessor #827718
	Certified Asbestos Consultant, #03-3495
Years of Experience:	Twenty Four

Summary of Professional Experience

Mr. Humphrey has more than twenty years experience in the environmental field including asbestos surveys, asbestos abatement monitoring and project design, environmental site assessment, soil and groundwater assessment and is an Environmental Professional as defined by the Environmental Protection Agency. Mr. Humphrey has conducted more than 2,000 Phase I Environmental Site Assessments of commercial, industrial, agricultural and multi-family residential properties in California, Nevada, Arizona, and Washington. Mr. Humphrey has more than two years experience in the ground-up development and management of a Hazardous Building Materials Department for a local environmental and engineering firm. Mr. Humphrey has also provided regulatory guidance, assessments, and asbestos surveys and monitoring to utility companies, flood control districts, public works departments, and branches of the military as part of facility expansion projects as well as new site development.

Mr. Humphrey's experience has included preliminary environmental assessments and various soil and groundwater investigations for highway expansion for the State of California Department of Transportation. Projects for the State of California highway expansion also included asbestos surveys of bridges and overpasses.

For a national environmental consulting firm, Mr. Humphrey served as Project Coordinator, where he performed and managed asbestos abatement oversight projects for national clients. Mr. Humphrey has also conducted environmental site assessments on multi-site industrial and commercial properties for various national financial institutions, developers, and property management companies. Assessments included limited and comprehensive surveys for asbestos, lead-based paint, lead-in-drinking-water and radon gas emissions.

Appendix F

Water Supply Assessment

Water Supply Assessment
For
MFI Limited
Copper Ridge Development

January 13th, 2025

Prepared by:

WALLACE GROUP
612 Clarion Court
San Luis Obispo, CA 93401
805 544-4011
Job Number: 1293-0003

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Attachment C. Tulare Lake Subbasin
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Attachment E. 2035 City of Hanford Land Use Map

SECTION 1
INTRODUCTION

This Section discusses the objective and purpose of this document as well as the applicable regulatory criteria and requirements.

1.1 OBJECTIVE AND PURPOSE

This water supply assessment (WSA) was developed to present the potential impacts of the proposed Copper Ridge Development on the water supplies of the City of Hanford, California.

This document's purpose is to ensure that water providers, local planning agencies, and other stakeholders understand whether there is sufficient water supply in normal, dry, and multiple dry years, in a 20-year period, to meet the project demands.

1.2 REGULATORY REQUIREMENTS

Senate Bill 610 (SB-610), passed in September 2001, supplements the California Water Code (CWC), requiring the preparation of a WSA when the project is subjected to the California Environmental Quality Act (CEQA) and other qualifying requirements. SB-610 helps to coordinate water supply availability and land use decisions made by cities and counties. This measure seeks a collaborative planning approach between water providers, local planning agencies, city, and county. SB-610 requires that water assessments must be furnished to local government to be incorporated as needed in documents for certain projects when subjected to CEQA. Senate Bill 221 (SB-221), passed in September 2001, requires that qualifying projects including those proposing 500 dwelling units or more, obtain a written verification of sufficient water supply from the water supplier.

1.3 PROJECT LOCATION AND DESCRIPTION

The proposed 83.61-acre project, named Copper Ridge Development, is located in Hanford in King's County, California. The project is at the corner of Grangeville Boulevard and 9 ¼ Avenue, as shown in Figure 1. The tentative subdivision maps for the project are included in Attachment A. The Assessor's Parcel Numbers (APN) for the proposed site are 014-143-069 and 014-143-078. This site is not within the FEMA 100-year flood plain. The development will be built on existing vacant agricultural land.

Figure 1. Project Location Map

The Copper Ridge development consists of 356 single family and 302 multi-family residential units on 78.16 acres, and a 5.45-acre commercial zone, per Table 1. The lot sizes will range from 2,800 square feet (SF) to 10,148 SF. Housing density is 8.41 units per acre. The development is divided into five proposed phases; a summary of unit count by phase is presented in Table 1. These single-family units, multi-family units, and commercial space will be connected to the City of Hanford water system.

Table 1. Copper Ridge Development Phasing

Phase	Total Unit Count	Single Family Units	Multi-Family Units	Commercial
Phase 1	181	181	-	-
Phase 2	150	150	-	-
Phase 3	95	25	70	-
Phase 4	112	-	112	-
Phase 5	120	-	120	5.45 Acres
Total	658	356	302	5.45 Acres

1.4 PROJECT SPECIFIC WATER RESOURCES

In this section the project specific details are discussed including those related to CWC and Senate Bill SB-610 project definitions and requirements, proposed public water systems, groundwater sustainability, and the referenced Urban Water Management Plan (UWMP) for the City of Hanford.[1]

1.4.1 WSA QUALIFYING PROJECT

CWC and SB-610 connect water supply and land use. SB-610 creates the legal framework for evaluating the adequacy of water supply for new developments that meet the qualification criteria of a regulated project. CWC Section 10912 (a) defines a project as:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Copper Ridge qualifies as a regulated project under these criteria as it proposes constructing 566 dwelling units, surpassing the 500 dwelling unit threshold. Therefore, this WSA has been prepared to assist in responding to the following questions that must be addressed under SB-610:

1. Is there a public waters system that will service the project?
2. Is there a current Urban Water Management Plan (UWMP) that accounts for the project demand?
3. Is groundwater a component of the supplies for the project?
4. Are there sufficient supplies to serve the project over the next 20 years?

[1] 2021, Akel Engineering Group, *City of Hanford 2020 Urban Water Management Plan*, October.

1.4.2 PUBLIC WATER SYSTEM

Under CWC Section 10912, an urban public water system (PWS) is defined as a system that has 3,000 or more service connections and provides piped water to the public for human consumption. The proposed PWS for Copper Ridge is owned and maintained by the City of Hanford. This system spans over 203 miles and has over 15,900 service connections.[2]

Per SB-610 the WSA must be prepared and furnished to the lead agency by the water utility serving the proposed project for inclusion in environmental documents as required by CWC Section 10912 (a) and CEQA. The CWC requires:

"…the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting."

SB-610 requires the PWS serving the project area to prepare the WSA.

1.4.3 GROUNDWATER SUSTAINABILITY

The City of Hanford obtains its water supply solely from groundwater. Hanford's water supply system consists of 14 active wells ranging from 600 to 1,700 feet deep and total supply capacity of 34.5 mgd (31.6 mgd firm capacity). The water distribution system includes three reservoirs with a cumulative storage capacity of 3.5 million gallons.

The California Department of Water Resources (DWR) divided California into ten hydrological regions. The City of Hanford is located in Region 7 – Tulare Lake, as shown in Attachment B. Hanford's groundwater supply comes from the Tulare Lake subbasin (Attachment C) which is approximately 837 square miles and part of the San Joaquin Valley basin. Tulare Lake subbasin has been classified as a high-priority basin. The City of Hanford is a participant in the development of the Mid-Kings River Groundwater Sustainability Agency's (MKR GSA) Groundwater Sustainability Plan (GSP) for Tulare Lake. According to the UWMP, the Tulare Lake Groundwater Subbasin is not adjudicated and the DWR has classified the basin as Type B, indicating that there is substantial data to estimate the groundwater extraction to meet local needs but not enough data to estimate the groundwater budget. The UWMP states (pg. 7-6):

"Because the City utilizes groundwater as its sole source of supply, the available "supply" drawn from the aquifer in any year is equal to the system-wide water demand for that particular year."

[2] Per City of Hanford Water Supply: *https://www.ci.hanford.ca.us/1569/Water-Information*

DWR estimates the total water storage of the subbasin as 17,100,000 acre-feet (AF) to a depth of 300 feet and 82,500,000 AF to the base of fresh groundwater. The GSP has not restricted the maximum groundwater available for supply.[3]

On April 16th, 2024, the State Water Resources Control Board (SWRCB) designated the Tulare Lake Subbasin as probationary. As of November 7th, 2024, and at the time of preparation of this WSA, the probationary designation has been suspended due to litigation. Therefore, SWRCB impacts, or subsequent groundwater management implications, have not been included in this report but must be considered if enacted.

1.4.4 URBAN WATER MANAGEMENT PLAN

An Urban Water Management Plan (UWMP) is one of the foundational documents for a WSA. The latest UWMP for the City of Hanford was published in 2020. UWMP are updated and issued to the DWR every 5 years. UWMP's are critical to the preparation of a WSA, as the DWR notes they can provide more than the required information to satisfy the SB-610 requirements. When an urban water supplier delivers more than 3,000 acre-feet/year (AFY) or serves more than 3,000 connections, running a water sufficiency analysis over 20 years for normal, dry, and multiple dry year scenarios is required. The City of Hanford has more than 15,900 service connections, meaning the water sufficiency analysis has been included in the UWMP, and serves as one of the bases for this WSA.

[3] Tulare Lake Annual Subbasin Report *https://www.midkingsrivergsa.org/assets/2022wy-tulare-lake-subbasin-annual-report.pdf*

SECTION 2
PROJECT WATER DEMAND

The estimated project water demand calculations and results are presented in this Section.

2.1 PROJECTED WATER DEMAND

The projected water usage for the 356 single-family units and 302 multi-family units is shown in Table 5. Two different methods were used to estimate a range of residential water usage. The first method estimates indoor and outdoor water usage on a per dwelling unit basis (i.e., individual lot) with results summarized in Table 4. Indoor water demand was estimated assuming an occupancy of 2.96 persons per household, equal to the occupancy rate cited in the 2020 UWMP, and a demand of 50 gallons per capita per day (gpcd). California State Water Code Section 10608.20 uses a target indoor water demand factor of 55 gpcd as an option for agencies in complying with water conservation requirements which reduces to 42 gpcd by 2030; this analysis assumes 50 gpcd.

To estimate outdoor water use, an estimate of landscape area per lot was made based on the average single family and multi-family (duplex and 8-unit multiplex) lot sizes and building floor plans. The ratio of lot size to landscaped area was reviewed for each of the proposed residential floor plans and an average ratio was calculated to estimate landscape area for an average single family, duplex, and 8-unit multi-plex lot. Common area water demand is the water demand for areas outside of the individual lots which would be maintained by a homeowners' association (HOA).

The second method used to estimate residential water demand, relies on a water duty demand factor from the 2017 Water System Master Plan (WSMP) based on land use type and acreage which provides an estimate of total water usage (indoor and outdoor combined; see Tables 2 and 3).

Table 5 compares the difference in projected residential water demand between Method 1: Water Use per Dwelling Unit, and Method 2: Water Duty Demands.

Table 2. Indoor Residential Water Demand –Method 1

Residence Type	DU per Acre	Indoor Per Capita Use (gpcd)[1]	Persons/du[2]	Indoor ADD (gpd/du)	Number of Units	Indoor Daily Consumption (gal)	Indoor annual consumption (AF)
Single Family Homes	8.5	50	2.96	148	356	52,688	59
Multi Family Duplex	12.3	50	2.96	148	182	26,936	30
Multi Family 8-unit	25.0	50	2.96	148	120	17,760	20
TOTAL				**444**	**658**	**97,384**	**109**

[1] California State Water Code Section 10608.20 uses a target indoor water demand factor of 55 gpcd as an option for agencies in complying with water conservation requirements which reduces to 42 gpcd by 2030; this analysis assumes 50 gpcd.

[2] Average Household Occupancy From 2020 Urban Water Management Plan

Table 3. Outdoor Residential Water Demand – Method 1

								Drought Tolerant Plants					Turf					Combined		
Residence Type	AVG Lot Size, SF	Landscaped area, SF	# of Lots	% Landscape Area	% Drought Tolerant Plants	% turf	Annual Ref Eto, in	Ornamental Plants, SF	Crop Coeff. Kc	Etc	Total Irrg.[1] (in)	Vol. (gallons)	Area Turf, SF	Crop Coeff. Kc	Etc	Total Irrig.[2] (in)	Vol. (gallons)	Vol. (gallons/year /DU)	Vol. (AF/year/ DU)	Total Vol. (AFY)
Single Family Homes	3,762	1,660	356	40%	75%	25%	59.6	1,245	0.3	17.88	22.07	17,131	415	0.8	47.68	63.57	16,445	33,576	0.10	36.68
Multi Family Duplex	3,100	650	182	21%	75%	25%	59.6	488	0.3	17.88	23.84	7,244	163	0.8	47.68	63.57	6,439	13,684	0.04	7.64
Multi Family 8plex	1,750	450	120	26%	75%	25%	59.6	338	0.3	17.88	23.84	5,015	113	0.8	47.68	63.57	4,458	9,473	0.03	3.49
Common Space	60,650	60,650	-	100%	75%	25%	59.6	45,488	0.3	17.88	23.84	675,956	15,163	0.8	47.68	63.57	600,850	1,276,806	3.92	3.92
																			Total	**52**

[1] Assumes irrigation efficiency of 81% for drought tolerant plants using drip irrigation.

[2] Assumes irrigation efficiency of 75% for turf overhead spray irrigation

Table 4. Indoor & Outdoor Residential Water Demand – Method 2

Residence Type	Area (ac)	Water Demand Factor (gpd/ac)[1]	Total Daily Consumption (gpd)	Total Annual Consumption (AFY)
Low Density Residential	78.16	1,810	141,470	159

[1] GPD/Acre from 2017 WSMP Table 3.3

Table 5. Method 1 and Method 2 Residential Demand Comparison Table

Estimated Water Demand		
Land Use Type	**Method 1: Demand Per Dwelling Unit**	**Method 2: Demand per Acreage**
Residential		
Indoor Annual Demand (gpd)	97,384	141,470
Outdoor Annual Demand (gpd)	46,183.8	
Total Demand (gpd)	143,567.8	141,469.6
Total Demand (afy)	*161.0*	*159.0*

Table 6 presents the projected water demands for commercial use. Copper Ridge is proposing 5.45 acres of commercial space. The commercial space consists of two 14,350 SF retail buildings, two 2,153 SF food buildings, and one 4,900 SF convenience/gas building. The two retail buildings and the food and convenience/gas buildings each take up roughly 50% of the commercial space, so it is assumed each is 2.73 acres. Commercial water demands were estimated using the water duty demand factors from the WSMP[4]. Retail buildings are assumed to be regional commercial land usage, and food and convenience/gas buildings as highway commercial.

Table 6. Commercial Water Demand

Commercial Use	Land Use Category	Area (AC)	Demand Factor (GPD/AC)[1]	Annual Demand (gpd)	Annual Demand (AFY)
Retail	Regional Commercial	2.73	820	2234.5	2.50
Food, Convenience/Gas	Highway Commercial	2.73	650	1771.3	1.98
			Total	4005.8	4.49

[1] GPD/Acre from 2017 WSPM Table 3.3

The total estimated water demand for the Copper Ridge development is shown below in Table 7. System losses were extrapolated from the reported losses in Table 4-1 of the UWMP, using the total metered demand and system losses to create a loss percentage factor of 7.4%. The range of total projected water demand is 176-179 AFY.

Table 7. Estimated Water Demand for Project

Usage	Average AFY
Low Density Residential	159-161
Commercial	4.5
Losses (7.4%)	11.8-12.2
Total	**176-179**

2.2 PROJECT PHASING

At the time of development of this WSA, Phases 1,2, and 3 the project are assumed to be completed within the next five years and Phases 4 and 5 are planned to be finished in approximately seven years; buildout is anticipated within a 10-year planning timeframe. Table 8 presents a summary of the water demand phased over a 10-year period; the projection assumes the high end of the estimated water demand at buildout (i.e., 179 AFY).

[4] 2017, Akel Engineering Group, *City of Hanford Water System Master Plan*, September.

Table 8. Copper Ridge Phased Demand

	Flow (acre-feet / year)				
	2025	2030	2035	2040	2045
Phase 1	0	53	53	53	53
Phase 2	0	44	44	44	44
Phase 3	0	23	23	23	23
Phase 4	0	0	26	26	26
Phase 5	0	0	31	31	31
Total	**0**	**120**	**179**	**179**	**179**

There are no projected demands for water needed to construct the development. At the time of development of this WSA, there is insufficient information available to provide a detailed projection of the construction water demands. It is recommended that construction water demands be estimated as the project progresses.

SECTION 3
WATER SUPPLY SUFFICIENCY

In this Section the projected water demand is compared to the available water supply.

3.1 AVALIABLE WATER SUPPLY

Copper Ridge development will receive water from the City of Hanford's PWS. Table 9 summarizes the projected demands estimated in this WSA and the PWS's supply and demand as reported in the UWMP. These supply and demand values are provided in acre-feet per year (AFY) for a 20-year period broken into five-year increments. Supply and demand are shown for three scenarios, a normal year, single dry year, and multiple dry years. During the single dry year and multiple dry year projections, a 11.6% demand factor increase has been applied to the project demands consistent with the approach taken in the UWMP to account for increased demand during periods of drought. Project demands from Table 8 and the project's share of supply are included. The project's share of supply is the percentage of the PWS supply needed to meet project demands.

Table 9. Available Water Supply and Project Demand

		Flow (AF)				
		2025	2030	2035	2040	2045
Normal Year	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	11,632	12,172	12,478	13,351	13,982
	Project Demand	0	120	179	179	179
	Project % of Supply	0.0	0.8	1.1	1.1	1.1
Single Dry Year	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2
Multiple Dry Years - Year 1 (1987)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2
Multiple Dry Years - Year 2 (1988)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2
Multiple Dry Years - Year 3 (1989)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2
Multiple Dry Years - Year 4 (1990)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2
Multiple Dry Years - Year 5 (1991)	Supply	15,110	15,351	15,602	15,866	16,142
	Demand	12,971	13,584	14,227	14,899	15,604
	Project Demand	0	134	200	200	200
	Project % of Supply	0.0	0.9	1.3	1.3	1.2

Note: Supply and demand data is from the City of Hanford 2020 Urban Water Management Plan, Tables 7-2, 7-3, and 7-4

As mentioned in Section 1.4.3, groundwater is extracted as the supply is needed. Copper Ridge development is projected to add 176 to 179 acre-feet per year to the City's overall water demand. In 2035 when all phases of construction are assumed to be complete, the project will increase the total supply needed by approximately 1.1% of the projected supply (1.3% in a drought year).

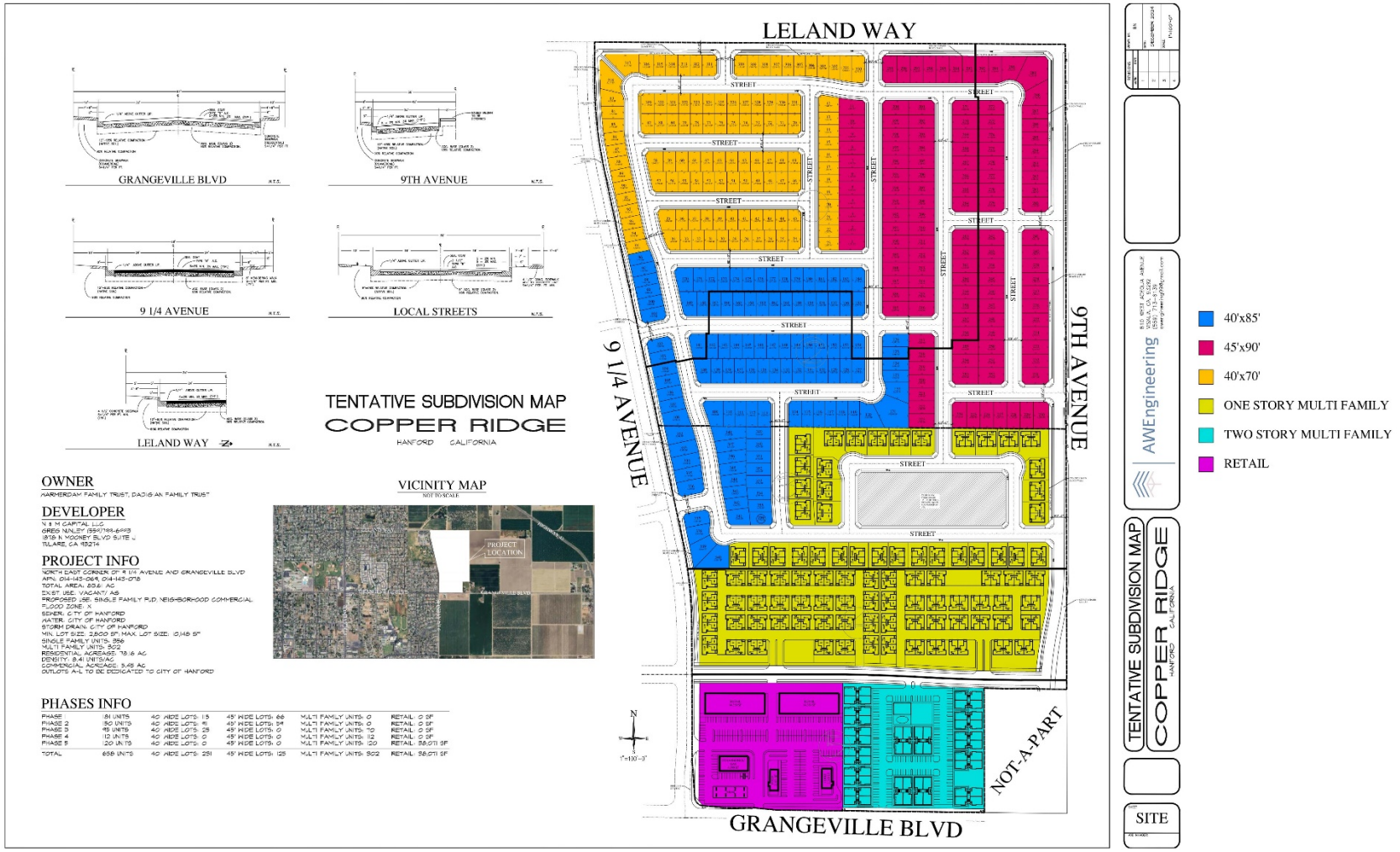
The UWMP outlines the current City limits and land use, as shown in Attachment D. Copper Ridge development is within the City's 2035 growth boundary. The predominantly low-density residential housing with commercial space is shown in a planned low- and medium-density residential zone, as shown in Attachment E. This growth area and corresponding land use were used in the 2017 WSMP as the basis for estimating future water demands, therefore, the City is actively planning for development in the area of proposed development and other areas within the growth boundary.

SECTION 4
CONCLUSION

Copper Ridge development is within the City General Plan's 2035 growth boundary. The development would be served by the City of Hanford's PWS, which relies on groundwater from the Lake Tulare subbasin. Water supply sufficiency is addressed in the City's 2020 UWMP which evaluates conditions under a single normal year, single dry year, and multiple dry years over a 20-year period. During the fifth year of a multiple dry year scenario, the Copper Ridge is expected to add up to 200 acre-feet of demand per year, which represents approximately 1.2% of the estimated 2045 water supply, indicating the Copper Ridge development will have a less than significant impact on the City's overall water supply.

This WSA is based primarily upon the City's latest adopted UWMP. This report cannot consider future regulation from the SWRCB or suspended groundwater basin probationary designation which may alter groundwater management policies. Based on a comparison of the project's demands compared to available supply, the City of Hanford shows sufficient water supply for the proposed project.

Attachment A: Tentative Subdivision Map Copper Ridge

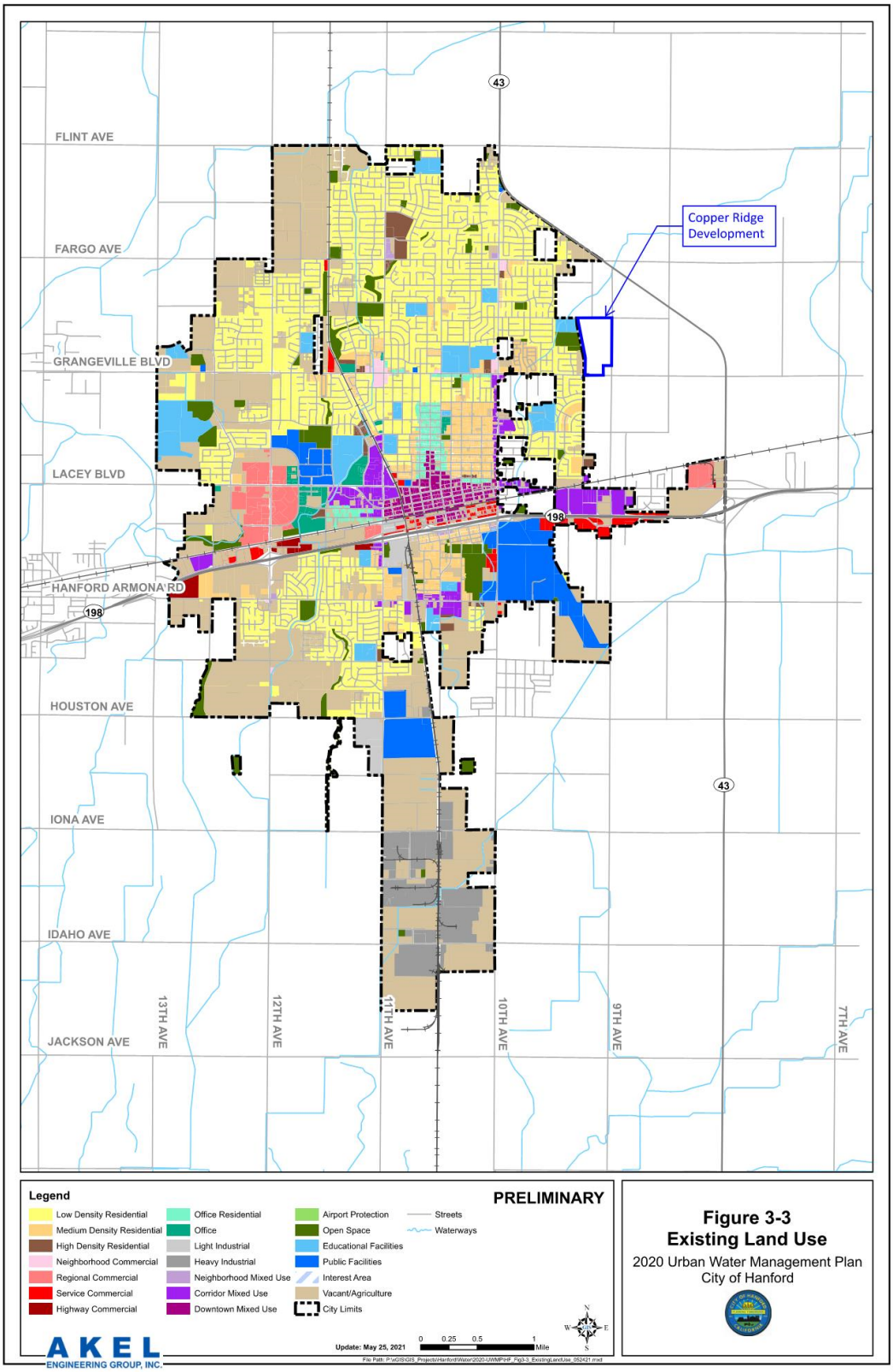


Attachment B: Tulare Lake Hydrologic Region

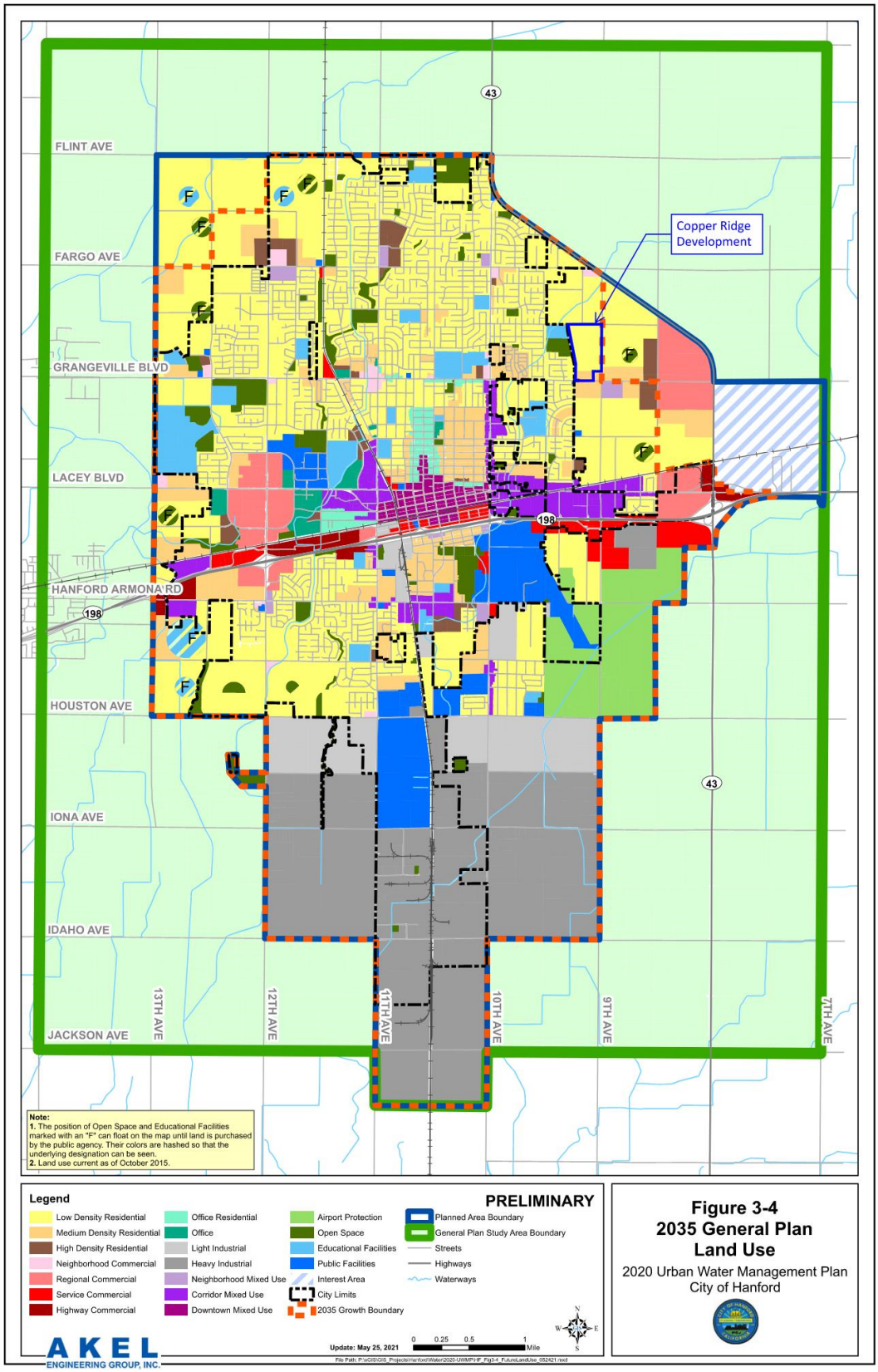
Figure 9-1 Tulare Lake Hydrologic Region

Attachment C: Tulare Lake Subbasin

Attachment D: 2020 City of Hanford Land Use Map



Attachment E: 2035 City of Hanford Land Use Map



Appendix G

Traffic Analysis

Traffic Evaluation

for the Copper Ridge Project

Hanford, California

DRAFT REPORT

December 2024

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https://d.docs.live.net/1908e84e76e68192/Desktop/C2 Consult/Projects/1341.13 Nunley Development - Copper Ridge VMT/Work Product/Copper Ridge VMT.doc

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Traffic Evaluation

for the Copper Ridge Project

CHAPTER 1 – INTRODUCTION

Study Purpose
The Copper Ridge Project is located in Hanford, California. The project occupies approximately 84 acres and is located at the northeast corner of the intersection of 9¼ Avenue at Grangeville Blvd. **Figure 1** shows a vicinity map of the area around the development site, while **Figure 5** shows the Cottonwood #3 site plan. This report evaluates the potential short-term changes in traffic with the addition of the proposed project. Based on discussions with the City of Hanford Staff, the following intersections and scenarios were analyzed.

Intersections
The study shall assess the following intersections:

1) Grangeville Blvd.at 10 Avenue
2) Grangeville Blvd.at 9 ¼ Avenue
3) Grangeville Blvd.at SR 43
4) 9 ¼ Avenue at Florinda Street
5) 9 ¼ Avenue at Leland Way

Scenarios
The study will include the following scenarios:

1) Existing
2) Existing plus the Copper River Project
3) Existing plus the Copper River Project (mitigated, if necessary)

Analysis Methodology
Existing peak hour turn counts (AM and PM) will be collected for the existing study intersections. Based on the data collected, an existing conditions analysis will be prepared using the existing counts and lane configurations and intersection control. The study intersections will be analyzed using the *Highway Capacity Manual* methodologies. Signal warrants (peak hour only) will be prepared using the methodologies from the *California Manual on Uniform Traffic Control Devices (MUTCD) for Street and Highways*. Peak hour signal warrants at all study intersections will be prepared as appropriate.

All level of service analyses performed for this study conform to the practices of the *Highway Capacity Manual*, and were done using the traffic analysis software HCS (unsignalized and

(signalized). For signalized intersections, this software allows for optimization of signal timings to minimize traffic delay at each intersection. This process can result in different signal cycle lengths for both the AM and PM peak hours of a given analysis scenario and may also vary between different scenarios. This optimization somewhat reflects traffic agency procedure whereby intersection signal cycle lengths are adjusted for differing traffic conditions and times, based on counts of existing traffic volume.

For analysis purposes, HCM defines six levels of service for various facility types. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operating conditions and "F" the worst. Quantifiable measures of effectiveness that best describe the quality of operation on the subject facility type are used to determine the facilities level of service. For the case of both signalized and unsignalized intersections, the quantifiable measure of effectiveness is average control delay.[1]

Control delay for two-way stop-controlled (TWSC) intersections, which have stop signs on only the minor street approaches, is on a per-vehicle basis and is computed for the stop-controlled, minor-street movements and major street left turn movements only, because major-street through movements are theoretically in continual free-flow conditions and therefore experience no delay. Since there is no aggregation of delay for a TWSC intersection, there is no level of service for an intersection as a whole, but only levels of service for individual minor-street and major-street left turn movements.

The following table shows level of service ratings and their corresponding ranges of average control delay for both signalized and unsignalized intersections. For signalized intersections, it also contains a general description of traffic flow associated with each level of service.

Level of service for each study intersection in the various analysis scenarios are summarized in tables throughout the report. For signalized intersections, the level of service rating shown represents the overall level of service for the intersection as a whole. For stop-controlled intersections, the level of service rating shown is for each individual traffic movement (excluding major-street through movements) instead of the entire intersection.

Level of Service Standard
The City of Hanford's Policy T29 set's the maximum Level of Service at "E" on streets and intersections within the area bounded by Highway 198, 10th Avenue, 11th Avenue, and Florinda Avenue, inclusive of these streets. The City has set a peak hour Level of Service of "D" on all other streets and intersections with the Planned Growth Boundary.

[1] Control delay, according to the *2010 Highway Capacity Manual*, page 16-1, includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.

INTERSECTION LEVEL OF SERVICE DESCRIPTIONS			Allowable Delay	
			Signalized	Unsignalized [1]
Level of Service	**Conditions**	**Signalized Intersection Description**	**Delay (sec/veh)**	**Delay (sec/veh)**
"A"	Free Flow	*Users experience very low delay. Progression is favorable and most vehicles do not stop at all.*	≤10.0	≤10.0
"B"	Stable Operations	*Vehicles travel with good progression. Some vehicles stop, causing slight delay.*	>10.0 – 20.0	>10.0 – 15.0
"C"	Stable Operations	*Higher delays result from fair progression. A significant number of vehicles stop, although many continue to pass through the intersection without stopping.*	>20.0 to 35.0	>15.0 – 25.0
"D"	Approaching Unstable	*Congestion is noticeable. Progression is unfavorable, with more vehicles stopping rather than passing through the intersection.*	>35.0 – 55.0	>25.0 – 35.0
"E"	Unstable Operations	*Traffic volumes are at capacity. Users experience poor progression and long delays.*	>55.0 – 80.0	>35.0 – 50.0
"F"	Forced Flow	*Intersection's capacity is oversaturated, causing poor progression and unusually long delays.*	>80.0	>50.0

Source: Chapters 16 and 18, Highway Capacity Manual, Transportation Research Board.
[1]Unsignalizedintersections include TWSC and AWSC

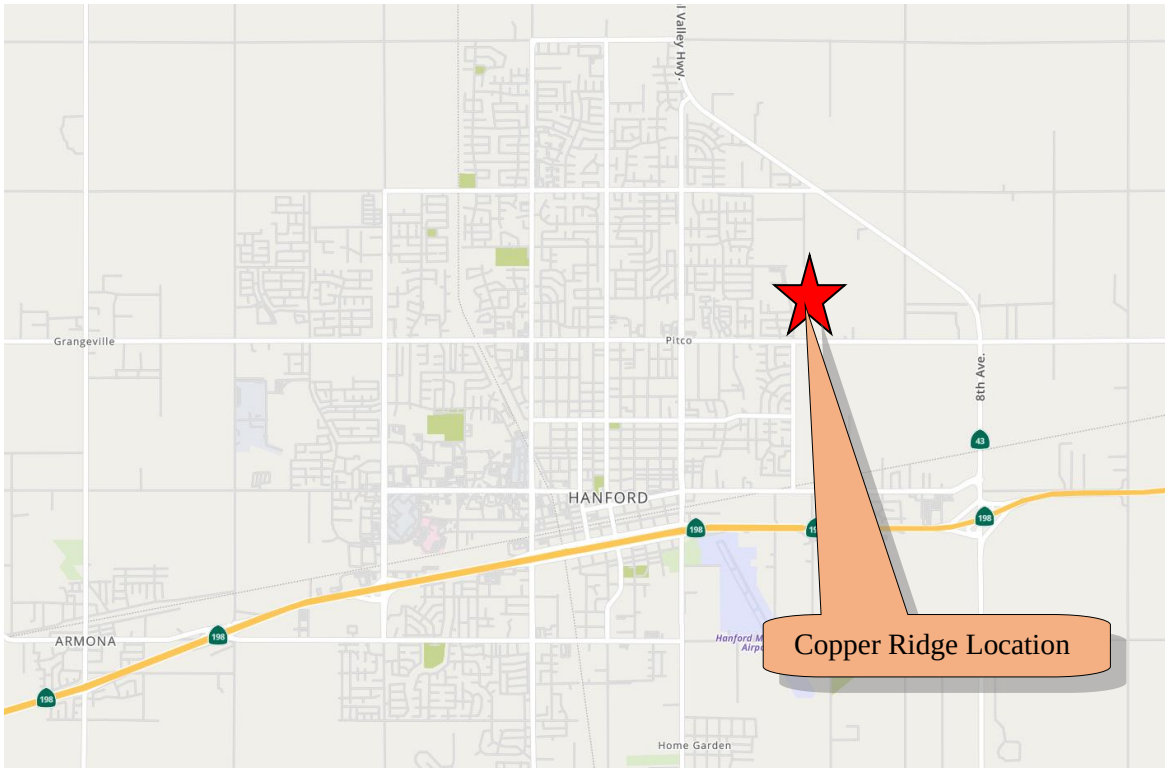


FIGURE 1: Vicinity Map

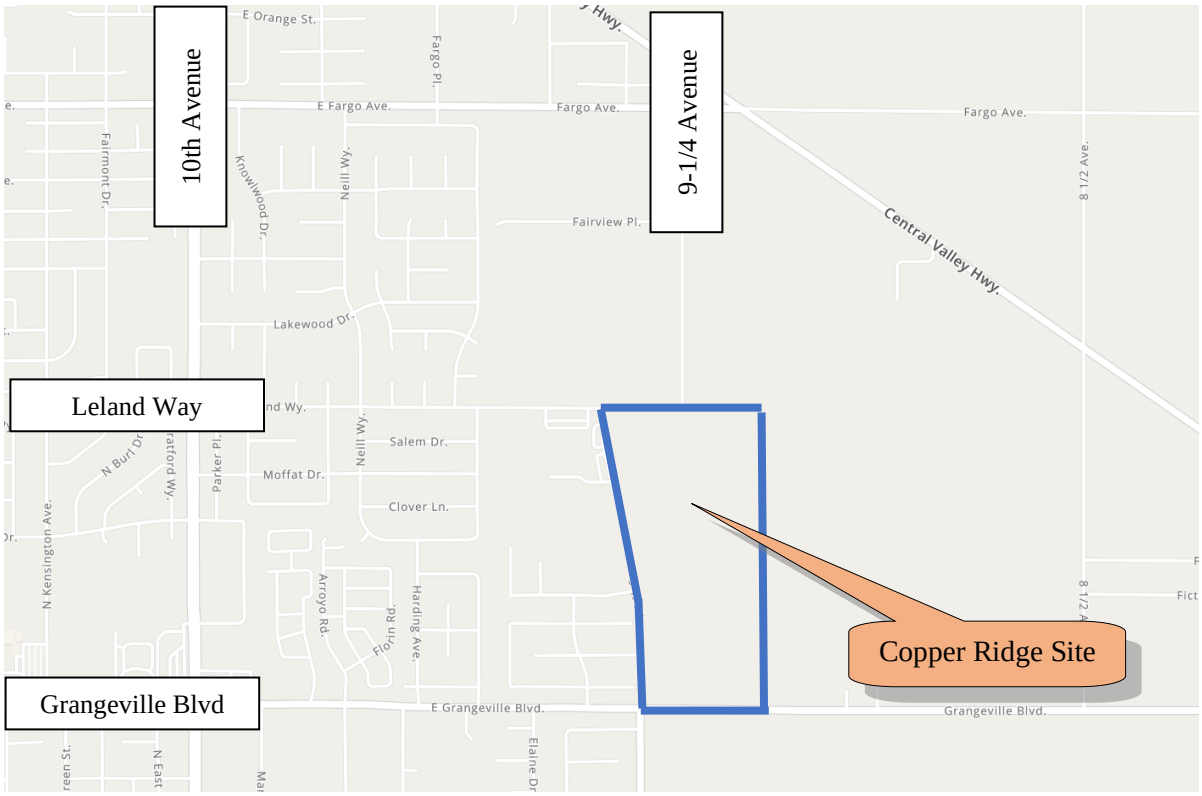


FIGURE 2: Project Location

Transit Service

Kings Area Regional Transit (KART) operates bus service throughout Kings County and surrounding counties. This service includes both fixed route and demand response services. Within Hanford KART operates eight routes as well as seven intercity routes to and from Hanford. Service generally operates Monday- Friday and every hour on Saturday. Local fares are $1.25 one-way and regional fares are $1.75 one-way.

Route 2 (Figure 3) operates along 10th Avenue, which is approximately 3/4 of a mile west of the Project site. Route 3 (Route 4) operates on 9-1/4 approximately 900 feet south of the Project. Service on these routes is provided Monday through Friday from 6:30 AM to 7:30 PM and on Saturday from 9:30 AM to 4:30 PM. Service is provided at 30-minute headways. Transfers can be made to other routes at the Transit Center located in Downtown Hanford.

FIGURE 3: Route 2 Service

FIGURE 4: Route 3 Service

CHAPTER 2 –EXISTING CONDITIONS

Roadways

Grangeville Boulevard

This street is a four-lane street east of 9 ¼ Avenue with traffic signals at the intersections of 10th Avenue, 9 ¼ Avenue and at SR 43. The street is designated as an Arterial in the City General Plan and is currently posted as a 45 mile per hour speed zone east of 10th Avenue and 55 mile per hour east of 9 ¼ Avenue.

10th Avenue

The street is a four-lane divided city street with traffic signals at the intersections of Grangeville Blvd and Leland Avenue. The street is designated as an Arterial in the City General Plan and is currently posted as a 40 mile per hour speed zone.

9 ¼ Avenue

Is a two-lane city street with a traffic signal at the intersection of Grangeville Blvd. The intersection with Leland Avenue is controlled by a northbound stop sign, while the intersection with Florinda Street is controlled by an eastbound stop sign. The street is designated as a collector street in the City's General Plan. The street is currently posted as a 35 mile per hour speed zone north of Grangeville Blvd. and an unposted 25 mile per hour residential speed zone south of Grangeville Blvd.

State Route 43

Is a two-lane State Highway with a traffic signal at the intersection of Grangeville Blvd. The State Highway is designated as a highway in the City's General Plan. The road is currently an unposted 55 mile per hour speed zone.

Florinda Street

Is a two-lane city street with a traffic signal at the intersection of 10th Avenue. The street is designated as a collector street in the City's General Plan. The street is currently posted as a 35 mile per hour speed zone.

Leland Way

Is a two-lane city street with a traffic signal at the intersection of 10th Avenue. The street is designated as a collector street in the City's General Plan. The street is currently an unposted 35 mile per hour speed zone.

Traffic Counts

According to the Institute of Transportation Engineers' *Traffic Impact Analyses for Site Development*, the overall purpose of a traffic impact study is to determine the project impacts that are likely to occur to the surrounding street system. In order to accomplish this, analysts need to determine what occurs when the peak of the project generated traffic is combined with the peak of the surrounding street traffic. The publication states that "peak periods [of adjacent streets and highways] are generally the weekday morning (7-9 a.m.) and evening (4-6 p.m.) peak hours, although local area characteristics occasionally result in other peaks (e.g., at major shopping or recreational centers).

On October 15, 2024, National Data & Surveying Services completed traffic counts between 7am and 9am and 4pm and 6pm at the designated intersections. That traffic data suggested that the peak hours were generally from 7:30 to 8:30am and from 4:30 to 5:30pm. The existing AM and PM traffic counts at the study intersection are shown in **Figure 3**.

Existing Conditions (2024)

Existing levels of service at the study intersections were assessed using the current lane configurations and using the existing weekday peak hour traffic volumes (shown in **Figure 3**). Level of service for existing conditions is summarized in **Table 1**. Calculations for the existing conditions are included in **Appendix A.**

Based on the existing conditions assessment, all five intersections are currently operating above the City of Hanford's level of service standard of "D".

Table 1:
Existing Conditions
Level of Service

	AM Peak Hour		PM Peak Hour	
Intersection	Vehicle Delay	LOS	Vehicle Delay	LOS
Grangeville Blvd.at 10th Ave	23.6	C	22.4	C
Grangeville Blvd.at 9 ¼th Ave	21.1	C	20.6	C
Grangeville Blvd.at SR 43	10.9	B	13.4	B
9 ¼ Ave at Florinda St				
Northbound approach	7.9	A	7.8	A
Eastbound approach	11.3	B	10.3	B
9 ¼ Ave at Leland Way				
Westbound approach	7.6	A	7.4	A
Northbound approach	9.8	A	9.2	A

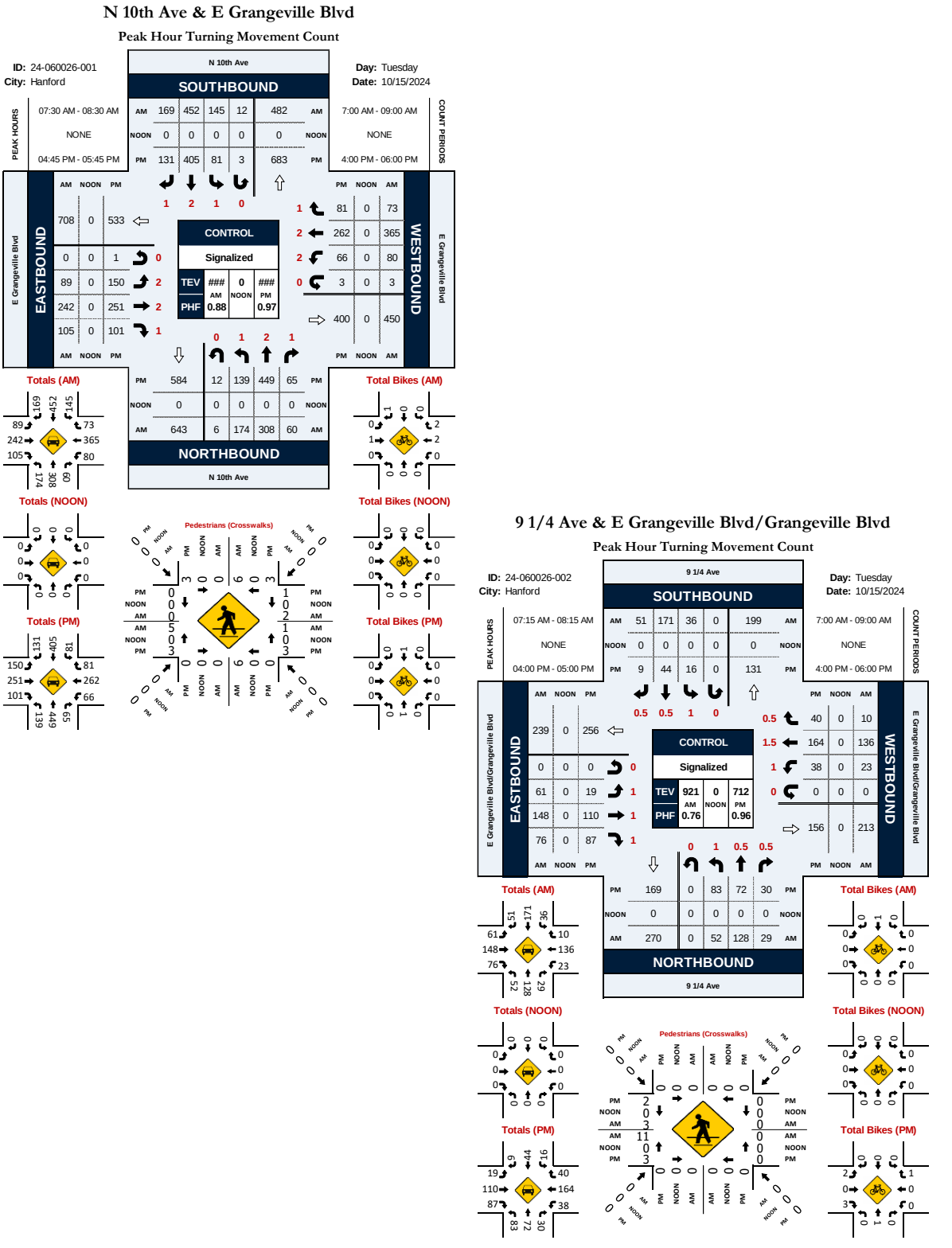


FIGURE 3: Existing Traffic Counts

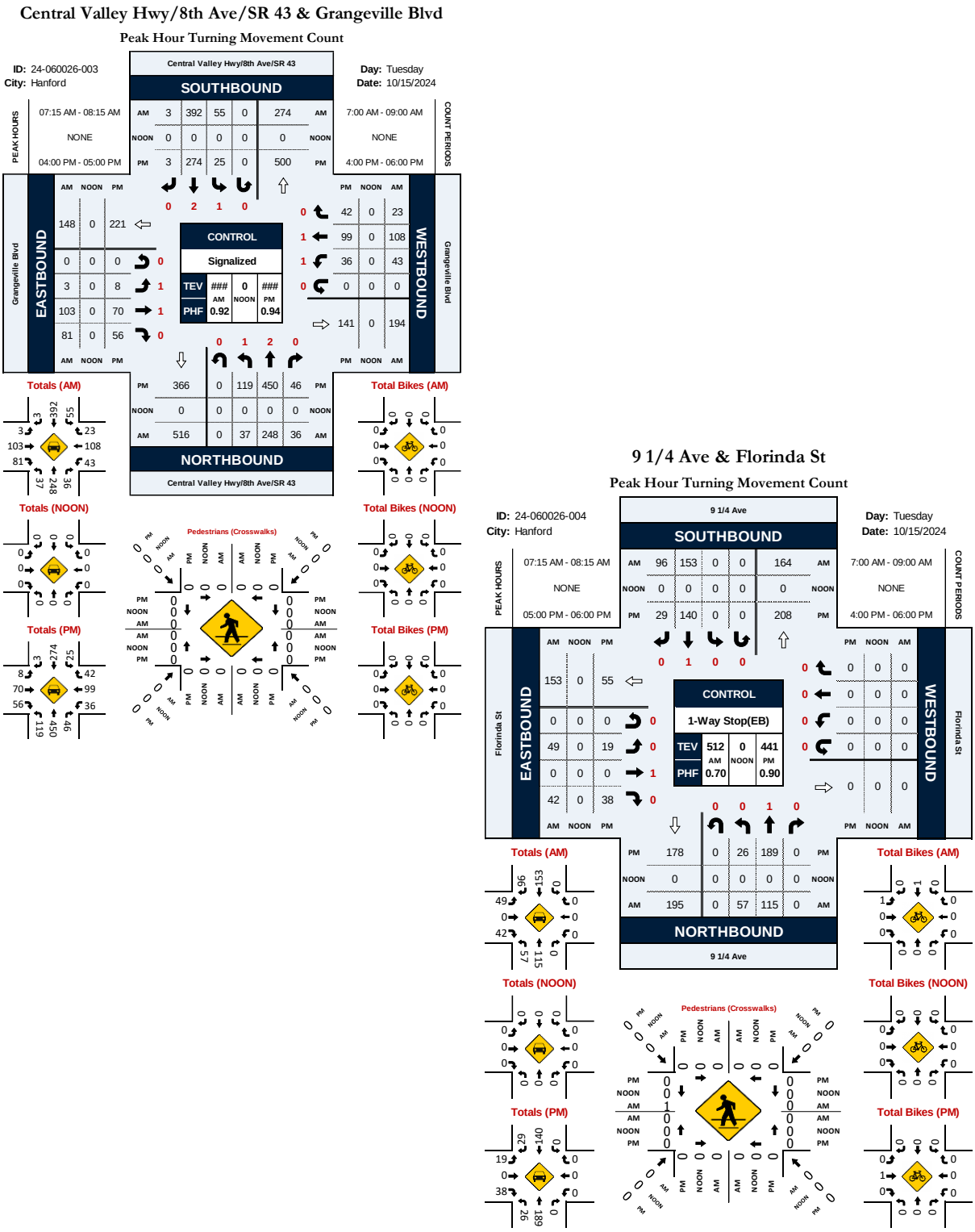


FIGURE 3: Existing Traffic Counts

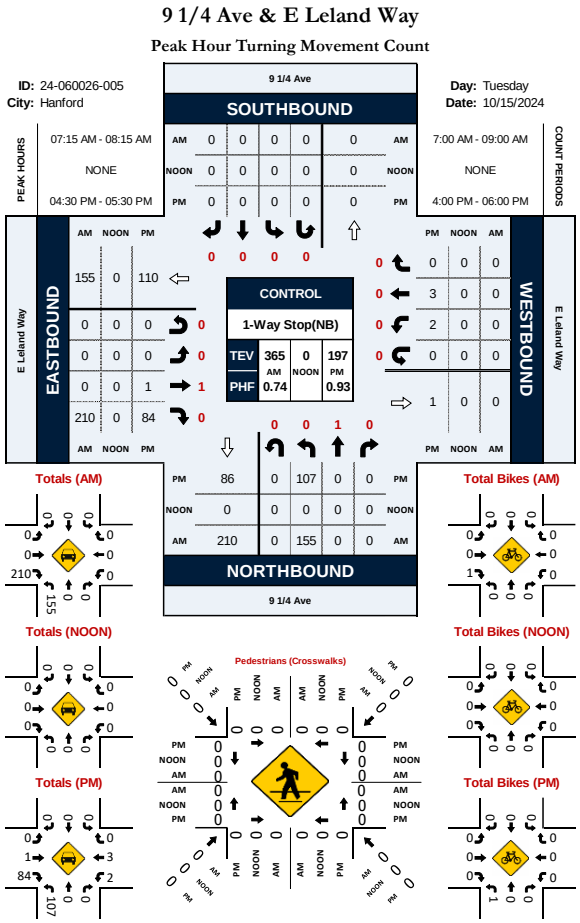


FIGURE 3: Existing Traffic Counts

CHAPTER 3 – PROJECT DESCRIPTION

Copper Ridge is a mixed-use development composed of 350 single family homes, 300 multi-family units and a total of 37,700 square feet of neighborhood retail space. The Project is located at the northeast corner of Grangeville Boulevard and 9 1/4 Avenue. The Project lies between Grangeville and Leland Way along the east side of 9 1/4. The Project will construct the extensions of both 9th Avenue between Grangeville and Leland and Leland Way between 9th Avenue and 9 ¼ Avenue. The Project site totals 83.61 acres. **Figure 5** shows the proposed site plan.

Project Trip Generation

New trips generated by the Copper Ridge Project were estimated using the Institute of Transportation Engineer's *Trip Generation Manual.* This publication provides average rates of trip generation for different land uses and relates these to dwelling units (residential) and square footages (fast food and retail shops). It should be noted that for the proposed mini-mart, the trip generation was computed from an estimated 16 gas pumps as depicted on the site plan layout. Trip generation rates are provided for weekdays along with the proportion of trips that are inbound or outbound from the development. The resulting Project trip generation is shown in **Table 1**.

The estimated Project's vehicle trips yield 862 trips in the AM peak hour and 1,079 trips in the PM peak hour. The Copper Ridge Project is estimated to generate a total of 12,091 daily trips. These are total project trips at the driveways or entrances. Actual new additional trips are discussed in the following section.

Table 2
Copper Ridge Project
Trip Generation

Land Use			Trips				
				AM Peak Hour		PM Peak Hour	
		Units	Daily	Enter	Exit	Enter	Exit
Residential	Single family	350	3,195	58	175	203	120
	Multi-family	300	1,998	28	88	95	56
Retail	Mini-mart (16 pumps)*	4,899	3,383	129	129	148	148
	Fast food	2,153	1,005	49	47	37	34
	Fast food	2,318	1,085	53	50	40	37
	Shops	28,330	1,425	34	23	82	82
Totals			**12,091**	**350**	**512**	**604**	**475**

**-calculated on number of pumps*

Project Pass-by Trips

Pass-by trips refer to traffic that is present on a roadway adjacent to a land use project for reasons other than accessing the project and that enters the project. The ITE Trip Generation Manual, defines pass-by trips as an intermediate stop on the way from an origin to a primary trip destination without route diversion. The Trip Generation Manual provides guidance on potential pass-by trips for selected land uses (generally, retail and commercial). This guidance is in the percentage of pass-by trips made to and from a particular land use.

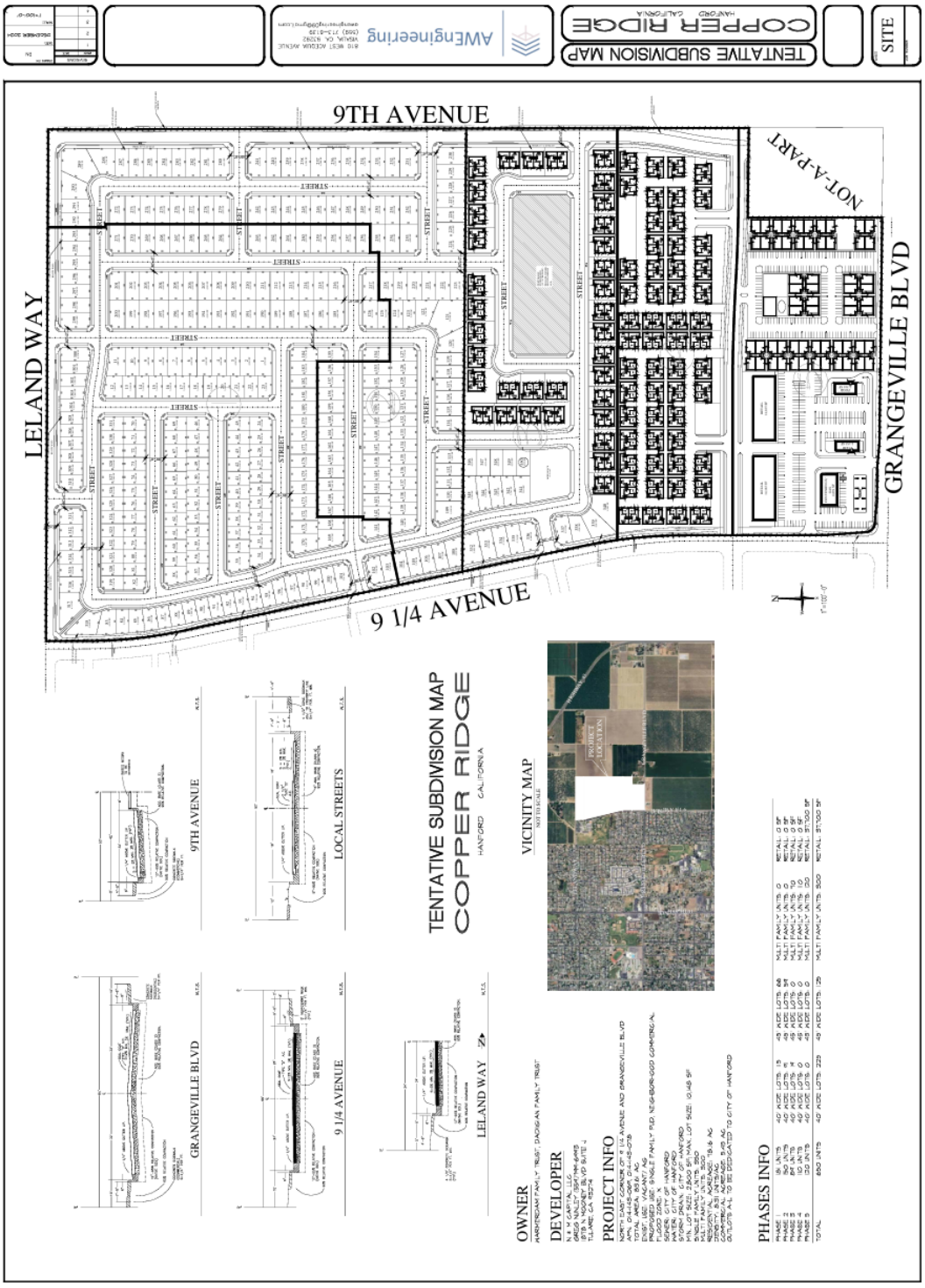


FIGURE 5: Copper Ridge Project

Table 3 shows the estimated net new trips in the AM and PM peak hours after accounting for the pass-by percentage for each of the proposed land uses. It should be noted that pass-by percentages are limited and some are available for only PM peak hours, some not at all and some for both AM and PM peak hours. Applying the ITE pass-by rates, the Copper River estimated additional (new) vehicle trips are 549 new trips in the AM peak hour and 717 new trips in the PM peak hour. The balance of the Project's trips shown in Table 2 will come from the existing traffic volumes along both Walnut Avenue and Lovers Lane.

Table 3
Copper Ridge Project
Net New Trips

Land Use			New Trips from Project				
				AM Peak Hour		PM Peak Hour	
		Units	Daily	Enter	Exit	Enter	Exit
Residential *	Single family	356	-	58	175	203	120
	Multi-family	302	-	28	88	95	56
Retail	Mini-mart (16 pumps)	4,900	-	31	31	37	37
	Fast food	2,153	-	24	24	17	15
	Fast food	2,318	-	26	25	18	17
	Shops	28,700	-	20	14	49	49
	Totals		**-**	**188**	**356**	**418**	**292**

** - no pass-by trips assigned to residential units*

Project Trip Distribution

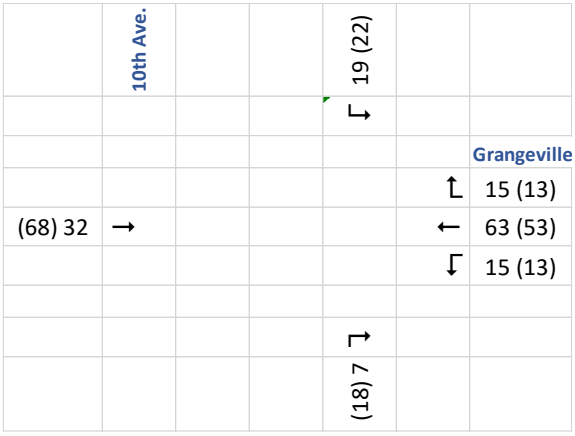
The Copper Ridge Project distribution was developed from existing volumes of traffic surrounding the site. These percentages were used to distribute project trips to the study intersections. It should be noted that as part of the Project, the eastern leg of the 9¼ Avenue at Leland Way will be constructed and three access connections will be developed into the Project site. **Table 4** shows the trip distribution for both AM and PM peak hour trips to and from the Copper Ridge Project. The distribution of the Project trips will be limited to only those additional trips added as a result of the Project. Pass-by trips will remain in the existing traffic streams at the study intersections and are accounted for in the existing traffic counts.

Table 4
Copper Ridge Project
Trip Distribution (percentage)

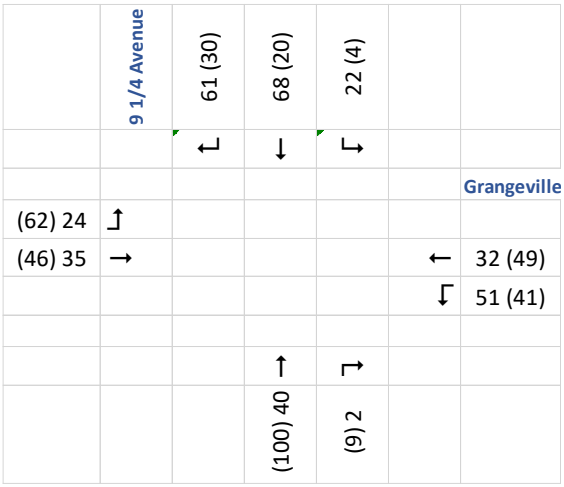
Peak Hour	AM		PM	
Direction	In	Out	In	Out
North	28%	22%	10%	18%
South	23%	29%	26%	24%
East	18%	23%	34%	22%
West	31%	26%	30%	36%
	100%	100%	100%	100%

Project Trip Assignment

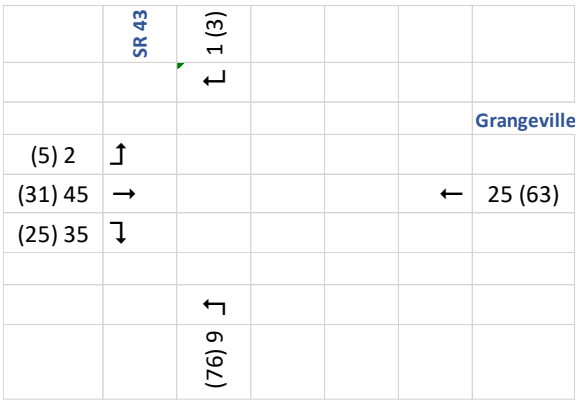
The specific project trip assignments at the intersections are shown in **Figure 6.** The assignments have been completed to reflect existing traffic volumes in the surrounding intersections.



Grangeville at 10th Avenue

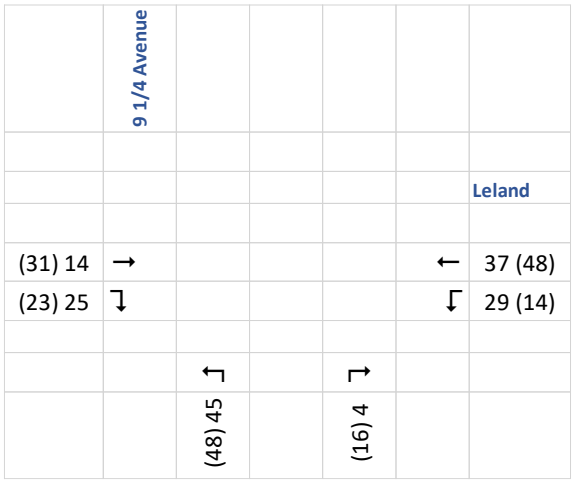


Grangeville at 9 ¼ Avenue

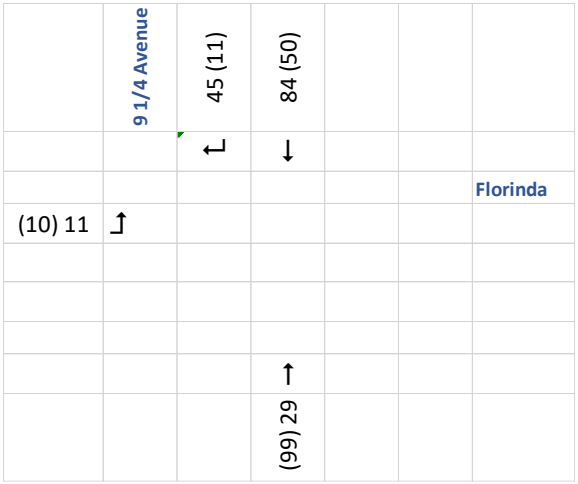


Grangeville at SR 43

FIGURE 6: Project Trip Assignment at Study Intersections



9 ¼ at Leland Way



9 ¼ at Florinda Street

FIGURE 6: Project Trip Assignment at Study Intersections

CHAPTER 4 – EXISTING CONDITIONS PLUS PROJECT

The conditions with trips generated from the Copper Ridge Project were assessed by adding the Project's net new trips to the existing traffic volumes which were shown in **Figure 3**. The Project's trip assignment is shown in **Figure 6**, which were added to the existing volumes to estimate the existing plus Project volumes. The combined peak hour traffic volumes used for this assessment are shown in **Figure 7**. The lane configurations at the intersection with the completion of the Copper Ridge Project were assumed to remain the same as existing with the exception of the 9 ¼ at Leland intersection. At this intersection the eastern leg was assumed to be partially constructed as part of the Copper Ridge project. This extension assumes a single eastbound lane along with a single westbound lane at this location.

Table 5
Existing Conditions PLUS Project
Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Vehicle Delay	LOS	Vehicle Delay	LOS
Grangeville Blvd.at 10th Ave	25.0	C	23.0	C
Grangeville Blvd.at 9 ¼th Ave	25.9	C	24.5	C
Grangeville Blvd.at SR 43	10.9	B	13.6	B
9 ¼ Ave at Florinda St				
Northbound approach	8.2	A	7.9	A
Eastbound approach	13.1	B	11.6	B
9 ¼ Ave at Leland Way				
Westbound approach	7.8	A	7.5	A
Northbound approach	11.6	B	10,5	B

The Level of Service Calculations for the Existing plus the Project can be seen in **Appendix B.** Based on the Existing plus Copper Ridge Project conditions assessment as shown in **Table 5**, the intersections are projected to operate above the City's level of service target standard of D.

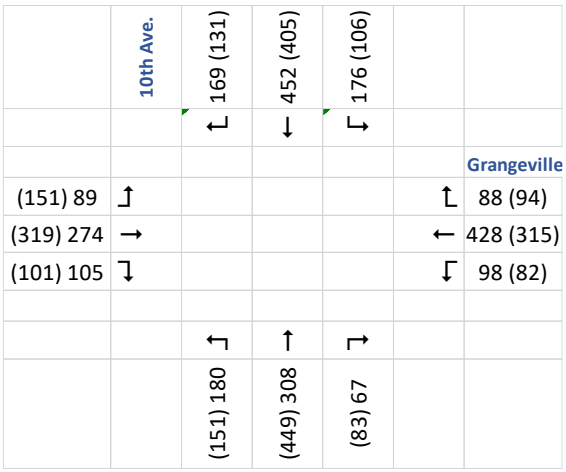
Payment of City Impact Fee

The Copper Ridge Project will contribute to the overall circulation system through the payment of the City's Traffic Impact Fee. This fee will be used to fund and construct street improvements throughout the City Based on the current fee structure the Copper Ridge Project is estimated to contribute approximately $3.5 million to this City fund (**Table 6**). This is an estimate based on the site plan shown in **Figure 5** and the final fee will be based on actual housing units, square footages and fueling pumps.

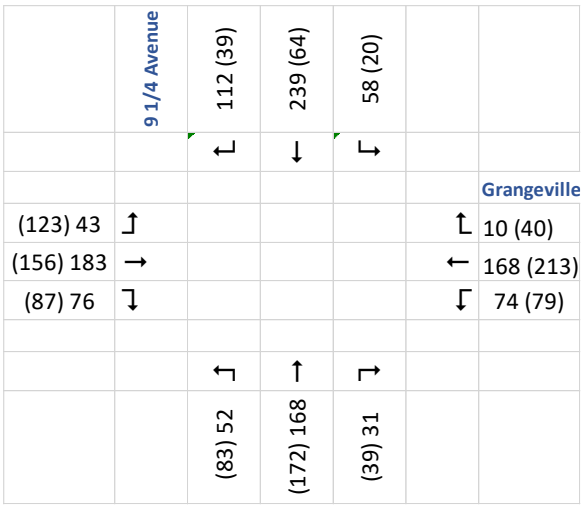
Table 6
Copper Ridge Project
Traffic Impact Fee

Land Use		Units	Rate	Fee
Residential	Single family	350	$ 3,995.72	$ 1,398,502.00
	Multi-family	300	$ 2,805.77	$ 841,731.00
Retail	Mini-mart (16 pumps)*	4,899	$ 15,412.20	$ 246,595.20
	Fast food	2,153	$ 27,683.03	$ 442,928.48
	Fast food	2,318	$ 27,683.03	$ 442,928.48
	Shops	28,330	$ 11,648.16	$ 186,370.56
	Totals			**$3,559,055.72**

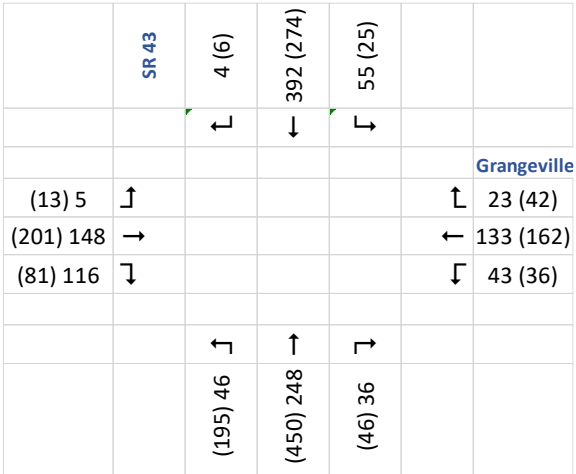
**-calculated on number of pumps*



Grangeville at 10th Avenue

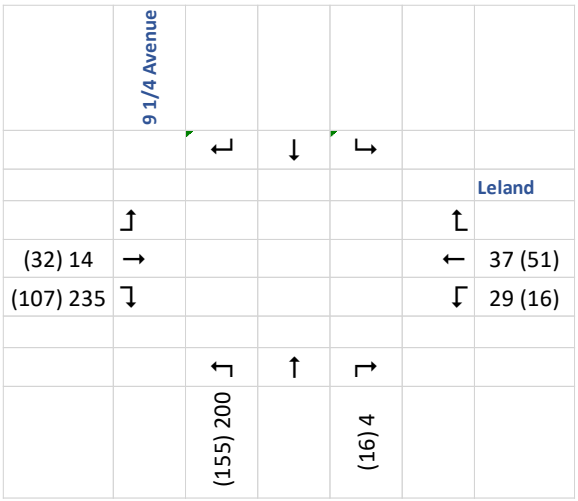


Grangeville at 9 ¼ Avenue

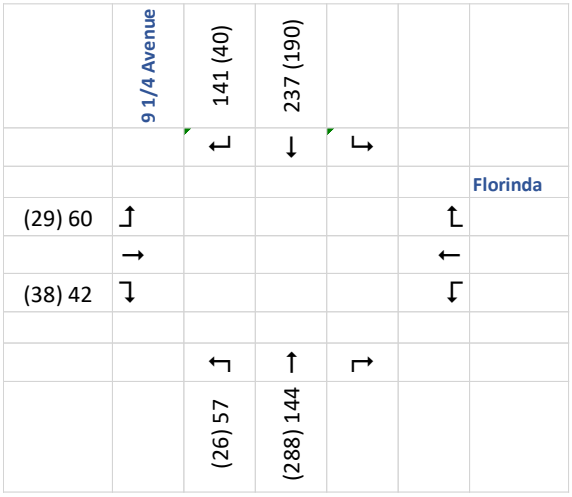


Grangeville at SR 43

FIGURE 7: Existing Plus Copper Ridge Traffic Counts



9 ¼ at Leland Way



9 ¼ at Florinda Street

FIGURE 7: Existing Plus Copper Ridge Traffic Counts

Appendix A
Existing Conditions
Level of Service Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	242	105	80	365	73	174	308	60	145	452	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	263	114	87	397	79	189	335	65	158	491	158
RTOR Reduction (vph)	0	0	84	0	0	58	0	0	48	0	0	116
Lane Group Flow (vph)	97	263	30	87	397	21	189	335	17	158	491	42
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	16.0	16.0	8.0	16.0	16.0
Effective Green, g (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	16.0	16.0	8.0	16.0	16.0
Actuated g/C Ratio	0.07	0.27	0.27	0.07	0.27	0.27	0.13	0.27	0.27	0.13	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	229	944	422	229	944	422	236	944	422	236	944	422
v/s Ratio Prot	c0.03	0.07		0.03	c0.11		c0.11	0.09		0.09	c0.14	
v/s Ratio Perm			0.02			0.01			0.01			0.03
v/c Ratio	0.42	0.28	0.07	0.38	0.42	0.05	0.80	0.35	0.04	0.67	0.52	0.10
Uniform Delay, d1	26.9	17.4	16.4	26.8	18.2	16.4	25.2	17.8	16.3	24.7	18.7	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.7	0.3	4.7	1.4	0.2	24.2	1.0	0.2	14.1	2.0	0.5
Delay (s)	32.5	18.2	16.8	31.5	19.5	16.6	49.4	18.9	16.5	38.9	20.8	17.0
Level of Service	C	B	B	C	B	B	D	B	B	D	C	B
Approach Delay (s)		20.8			21.0			28.4			23.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	251	101	66	262	81	139	449	65	81	405	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	273	110	72	285	88	151	488	71	88	440	142
RTOR Reduction (vph)	0	0	81	0	0	65	0	0	51	0	0	104
Lane Group Flow (vph)	163	273	29	72	285	23	151	488	20	88	440	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	17.0	17.0	7.0	16.0	16.0
Effective Green, g (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	17.0	17.0	7.0	16.0	16.0
Actuated g/C Ratio	0.07	0.27	0.27	0.07	0.27	0.27	0.13	0.28	0.28	0.12	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	229	944	422	229	944	422	236	1003	449	207	944	422
v/s Ratio Prot	c0.05	0.08		0.02	c0.08		c0.09	c0.14		0.05	0.12	
v/s Ratio Perm			0.02			0.01			0.01			0.02
v/c Ratio	0.71	0.29	0.07	0.31	0.30	0.06	0.64	0.49	0.04	0.43	0.47	0.09
Uniform Delay, d1	27.4	17.5	16.4	26.7	17.5	16.4	24.6	17.9	15.6	24.6	18.4	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.1	0.8	0.3	3.6	0.8	0.3	12.6	1.7	0.2	6.3	1.7	0.4
Delay (s)	44.6	18.3	16.8	30.3	18.4	16.6	37.2	19.6	15.8	30.9	20.1	16.9
Level of Service	D	B	B	C	B	B	D	B	B	C	C	B
Approach Delay (s)		25.8			19.9			22.9			20.8	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM Average Control Delay	22.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	43.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	148	76	23	136	10	52	128	29	36	171	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1810		1770	1799	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1810		1770	1799	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	161	83	25	148	11	57	139	32	39	186	55
RTOR Reduction (vph)	0	0	58	0	0	8	0	14	0	0	18	0
Lane Group Flow (vph)	66	161	25	25	148	3	57	157	0	39	223	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.0	18.0	18.0	4.0	16.0	16.0	6.0	17.0		5.0	16.0	
Effective Green, g (s)	6.0	18.0	18.0	4.0	16.0	16.0	6.0	17.0		5.0	16.0	
Actuated g/C Ratio	0.10	0.30	0.30	0.07	0.27	0.27	0.10	0.28		0.08	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	177	559	475	118	497	422	177	513		148	480	
v/s Ratio Prot	c0.04	c0.09		0.01	0.08		c0.03	0.09		0.02	c0.12	
v/s Ratio Perm			0.02			0.00						
v/c Ratio	0.37	0.29	0.05	0.21	0.30	0.01	0.32	0.31		0.26	0.47	
Uniform Delay, d1	25.2	16.1	14.9	26.5	17.5	16.2	25.1	16.9		25.8	18.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	1.3	0.2	4.1	1.5	0.0	4.8	1.5		4.3	3.2	
Delay (s)	31.2	17.4	15.1	30.6	19.1	16.2	29.9	18.4		30.1	21.6	
Level of Service	C	B	B	C	B	B	C	B		C	C	
Approach Delay (s)		19.7			20.4			21.3			22.8	
Approach LOS		B			C			C			C	

Intersection Summary				
HCM Average Control Delay	21.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.35			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	39.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	110	87	38	164	40	83	72	30	16	44	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1780		1770	1815	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1780		1770	1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	120	95	41	178	43	90	78	33	17	48	10
RTOR Reduction (vph)	0	0	70	0	0	32	0	22	0	0	7	0
Lane Group Flow (vph)	21	120	25	41	178	11	90	89	0	17	51	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	4.0	16.0	16.0	4.0	16.0	16.0	7.0	20.0		4.0	17.0	
Effective Green, g (s)	4.0	16.0	16.0	4.0	16.0	16.0	7.0	20.0		4.0	17.0	
Actuated g/C Ratio	0.07	0.27	0.27	0.07	0.27	0.27	0.12	0.33		0.07	0.28	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	118	497	422	118	497	422	207	593		118	514	
v/s Ratio Prot	0.01	0.06		c0.02	c0.10		c0.05	c0.05		0.01	0.03	
v/s Ratio Perm			0.02			0.01						
v/c Ratio	0.18	0.24	0.06	0.35	0.36	0.03	0.43	0.15		0.14	0.10	
Uniform Delay, d1	26.4	17.2	16.4	26.8	17.8	16.3	24.7	14.0		26.4	15.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	1.1	0.3	7.9	2.0	0.1	6.5	0.5		2.6	0.4	
Delay (s)	29.7	18.4	16.7	34.7	19.8	16.4	31.2	14.6		28.9	16.2	
Level of Service	C	B	B	C	B	B	C	B		C	B	
Approach Delay (s)		18.7			21.6			22.0			19.1	
Approach LOS		B			C			C			B	

Intersection Summary				
HCM Average Control Delay	20.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	33.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	103	81	43	108	23	37	248	36	55	392	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.97		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1690		1719	1762		1641	1695		1641	1725	
Flt Permitted	0.67	1.00		0.63	1.00		0.40	1.00		0.54	1.00	
Satd. Flow (perm)	1206	1690		1144	1762		691	1695		928	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	112	88	47	117	25	40	270	39	60	426	3
RTOR Reduction (vph)	0	53	0	0	15	0	0	13	0	0	1	0
Lane Group Flow (vph)	3	147	0	47	127	0	40	296	0	60	428	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	10%	10%	10%	10%	10%	10%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	482	676		458	705		276	678		371	690	
v/s Ratio Prot		c0.09			0.07			0.17			c0.25	
v/s Ratio Perm	0.00			0.04			0.06			0.06		
v/c Ratio	0.01	0.22		0.10	0.18		0.14	0.44		0.16	0.62	
Uniform Delay, d1	7.2	7.9		7.5	7.8		7.6	8.7		7.7	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.7		0.4	0.6		1.1	2.0		0.9	4.2	
Delay (s)	7.2	8.6		8.0	8.3		8.7	10.8		8.6	13.7	
Level of Service	A	A		A	A		A	B		A	B	
Approach Delay (s)		8.6			8.2			10.5			13.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	70	56	36	99	42	119	450	46	25	274	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1689		1719	1728		1641	1703		1641	1725	
Flt Permitted	0.66	1.00		0.67	1.00		0.55	1.00		0.28	1.00	
Satd. Flow (perm)	1193	1689		1211	1728		945	1703		487	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	76	61	39	108	46	129	489	50	27	298	3
RTOR Reduction (vph)	0	37	0	0	28	0	0	9	0	0	1	0
Lane Group Flow (vph)	9	100	0	39	126	0	129	530	0	27	300	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	10%	10%	10%	10%	10%	10%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	477	676		484	691		378	681		195	690	
v/s Ratio Prot		0.06			c0.07			c0.31			0.17	
v/s Ratio Perm	0.01			0.03			0.14			0.06		
v/c Ratio	0.02	0.15		0.08	0.18		0.34	0.78		0.14	0.43	
Uniform Delay, d1	7.3	7.7		7.4	7.8		8.3	10.5		7.6	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.5		0.3	0.6		2.4	8.5		1.5	2.0	
Delay (s)	7.3	8.1		7.8	8.4		10.8	19.0		9.1	10.7	
Level of Service	A	A		A	A		B	B		A	B	
Approach Delay (s)		8.1			8.2			17.4			10.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	9 1/4 at Florinda
Agency/Co.	Hanford	Jurisdiction	
Date Performed	12/18/2024	Analysis Year	Existing
Analysis Time Period	AM Peak		

Project Description: Copper Ridge

East/West Street: Florinda | North/South Street: 9 1/4

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	57	115			153	96
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	57	115	0	0	153	96
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	49	0	42			
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	49	0	42	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
v (veh/h)	57						91	
C (m) (veh/h)	1317						660	
v/c	0.04						0.14	
95% queue length	0.14						0.48	
Control Delay (s/veh)	7.9						11.3	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.3		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Hanford*
Date Performed	*12/18/2024*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*9 1/4 at Florinda*
Jurisdiction	
Analysis Year	*Existing*

Project Description *Copper Ridge*

East/West Street: *Florinda* | North/South Street: *9 1/4*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*26*	*189*			*140*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*26*	*189*	*0*	*0*	*140*	*96*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*19*	*0*	*38*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*19*	*0*	*38*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*26*						*57*	
C (m) (veh/h)	*1331*						*733*	
v/c	*0.02*						*0.08*	
95% queue length	*0.06*						*0.25*	
Control Delay (s/veh)	*7.8*						*10.3*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.3*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Hanford*
Date Performed	*12/18/2024*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*9 1/4 at Leland*
Jurisdiction	
Analysis Year	*Existing*

Project Description *copper Ridge*

East/West Street: *Leland* | North/South Street: *9 1/4*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*0*	*210*	*0*	*0*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*210*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*155*					
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*155*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*0*	*0*	*0*	*0*
Configuration	*L*					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*					
v (veh/h)		*0*	*155*					
C (m) (veh/h)		*1373*	*898*					
v/c		*0.00*	*0.17*					
95% queue length		*0.00*	*0.62*					
Control Delay (s/veh)		*7.6*	*9.8*					
LOS		*A*	*A*					
Approach Delay (s/veh)	--	--	*9.8*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Hanford*
Date Performed	*12/18/2024*
Analysis Time Period	*PM Peak*

Site Information

Intersection	*9 1/4 at Leland*
Jurisdiction	
Analysis Year	*Existing*

Project Description *copper Ridge*

East/West Street: *Leland*	North/South Street: *9 1/4*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*1*	*84*	*2*	*3*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*1*	*84*	*2*	*3*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*107*					
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*107*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*0*	*0*	*0*	*0*
Configuration	*L*					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*					
v (veh/h)		*2*	*107*					
C (m) (veh/h)		*1524*	*963*					
v/c		*0.00*	*0.11*					
95% queue length		*0.00*	*0.37*					
Control Delay (s/veh)		*7.4*	*9.2*					
LOS		*A*	*A*					
Approach Delay (s/veh)	--	--	*9.2*					
Approach LOS	--	--	*A*					

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Appendix B

Existing Plus Copper Ridge Project Conditions

Level of Service Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	274	105	98	428	88	180	308	67	176	452	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	298	114	107	465	96	196	335	73	191	491	184
RTOR Reduction (vph)	0	0	84	0	0	70	0	0	54	0	0	135
Lane Group Flow (vph)	97	298	30	107	465	26	196	335	19	191	491	49
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	16.0	16.0	8.0	16.0	16.0
Effective Green, g (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	16.0	16.0	8.0	16.0	16.0
Actuated g/C Ratio	0.07	0.27	0.27	0.07	0.27	0.27	0.13	0.27	0.27	0.13	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	229	944	422	229	944	422	236	944	422	236	944	422
v/s Ratio Prot	0.03	0.08		c0.03	c0.13		c0.11	0.09		0.11	c0.14	
v/s Ratio Perm			0.02			0.02			0.01			0.03
v/c Ratio	0.42	0.32	0.07	0.47	0.49	0.06	0.83	0.35	0.05	0.81	0.52	0.12
Uniform Delay, d1	26.9	17.6	16.4	27.0	18.6	16.4	25.3	17.8	16.3	25.3	18.7	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.9	0.3	6.7	1.8	0.3	27.5	1.0	0.2	25.1	2.0	0.6
Delay (s)	32.5	18.5	16.8	33.7	20.4	16.7	52.8	18.9	16.5	50.3	20.8	17.2
Level of Service	C	B	B	C	C	B	D	B	B	D	C	B
Approach Delay (s)		20.8			22.0			29.6			26.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	319	101	82	315	94	151	449	83	106	405	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	347	110	89	342	102	164	488	90	115	440	142
RTOR Reduction (vph)	0	0	81	0	0	75	0	0	65	0	0	104
Lane Group Flow (vph)	164	347	29	89	342	27	164	488	26	115	440	38
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	17.0	17.0	7.0	16.0	16.0
Effective Green, g (s)	4.0	16.0	16.0	4.0	16.0	16.0	8.0	17.0	17.0	7.0	16.0	16.0
Actuated g/C Ratio	0.07	0.27	0.27	0.07	0.27	0.27	0.13	0.28	0.28	0.12	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	229	944	422	229	944	422	236	1003	449	207	944	422
v/s Ratio Prot	c0.05	c0.10		0.03	0.10		c0.09	c0.14		0.06	0.12	
v/s Ratio Perm			0.02			0.02			0.02			0.02
v/c Ratio	0.72	0.37	0.07	0.39	0.36	0.06	0.69	0.49	0.06	0.56	0.47	0.09
Uniform Delay, d1	27.4	17.9	16.4	26.8	17.9	16.4	24.8	17.9	15.7	25.0	18.4	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	1.1	0.3	4.9	1.1	0.3	15.6	1.7	0.2	10.3	1.7	0.4
Delay (s)	44.9	19.0	16.8	31.7	18.9	16.7	40.4	19.6	15.9	35.4	20.1	16.9
Level of Service	D	B	B	C	B	B	D	B	B	D	C	B
Approach Delay (s)		25.4			20.6			23.7			22.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	183	76	74	168	10	52	168	31	58	239	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1819		1770	1774	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1819		1770	1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	199	83	80	183	11	57	183	34	63	260	122
RTOR Reduction (vph)	0	0	58	0	0	8	0	11	0	0	28	0
Lane Group Flow (vph)	47	199	25	80	183	3	57	206	0	63	354	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.0	18.0	18.0	4.0	16.0	16.0	6.0	17.0		5.0	16.0	
Effective Green, g (s)	6.0	18.0	18.0	4.0	16.0	16.0	6.0	17.0		5.0	16.0	
Actuated g/C Ratio	0.10	0.30	0.30	0.07	0.27	0.27	0.10	0.28		0.08	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	177	559	475	118	497	422	177	515		148	473	
v/s Ratio Prot	0.03	c0.11		c0.05	0.10		0.03	0.11		c0.04	c0.20	
v/s Ratio Perm			0.02			0.00						
v/c Ratio	0.27	0.36	0.05	0.68	0.37	0.01	0.32	0.40		0.43	0.75	
Uniform Delay, d1	25.0	16.5	14.9	27.4	17.9	16.2	25.1	17.4		26.1	20.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	1.8	0.2	27.1	2.1	0.0	4.8	2.3		8.7	10.4	
Delay (s)	28.6	18.2	15.1	54.4	20.0	16.2	29.9	19.7		34.9	30.5	
Level of Service	C	B	B	D	B	B	C	B		C	C	
Approach Delay (s)		18.9			29.9			21.8			31.2	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	156	87	74	213	40	83	171	39	20	64	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1811		1770	1758	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	1811		1770	1758	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	170	95	80	232	43	90	186	42	22	70	42
RTOR Reduction (vph)	0	0	70	0	0	32	0	14	0	0	31	0
Lane Group Flow (vph)	134	170	25	80	232	11	90	214	0	22	81	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	7.0	16.0	16.0	7.0	16.0	16.0	5.0	17.0		4.0	16.0	
Effective Green, g (s)	7.0	16.0	16.0	7.0	16.0	16.0	5.0	17.0		4.0	16.0	
Actuated g/C Ratio	0.12	0.27	0.27	0.12	0.27	0.27	0.08	0.28		0.07	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	207	497	422	207	497	422	148	513		118	469	
v/s Ratio Prot	c0.08	0.09		0.05	c0.12		c0.05	c0.12		0.01	0.05	
v/s Ratio Perm			0.02			0.01						
v/c Ratio	0.65	0.34	0.06	0.39	0.47	0.03	0.61	0.42		0.19	0.17	
Uniform Delay, d1	25.3	17.8	16.4	24.5	18.4	16.3	26.6	17.5		26.5	16.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.6	1.9	0.3	5.4	3.1	0.1	17.2	2.5		3.5	0.8	
Delay (s)	39.9	19.6	16.7	29.9	21.6	16.4	43.7	20.0		29.9	17.7	
Level of Service	D	B	B	C	C	B	D	B		C	B	
Approach Delay (s)		25.7			22.8			26.7			19.7	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	148	116	43	133	23	46	248	36	55	392	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1690		1719	1770		1641	1695		1641	1725	
Flt Permitted	0.65	1.00		0.56	1.00		0.40	1.00		0.54	1.00	
Satd. Flow (perm)	1176	1690		1020	1770		689	1695		928	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	161	126	47	145	25	50	270	39	60	426	4
RTOR Reduction (vph)	0	70	0	0	15	0	0	13	0	0	1	0
Lane Group Flow (vph)	5	217	0	47	155	0	50	296	0	60	429	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	10%	10%	10%	10%	10%	10%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	470	676		408	708		276	678		371	690	
v/s Ratio Prot		c0.13			0.09			0.17			c0.25	
v/s Ratio Perm	0.00			0.05			0.07			0.06		
v/c Ratio	0.01	0.32		0.12	0.22		0.18	0.44		0.16	0.62	
Uniform Delay, d1	7.2	8.3		7.5	7.9		7.8	8.7		7.7	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.3		0.6	0.7		1.4	2.0		0.9	4.2	
Delay (s)	7.3	9.5		8.1	8.6		9.2	10.8		8.6	13.8	
Level of Service	A	A		A	A		A	B		A	B	
Approach Delay (s)		9.5			8.5			10.5			13.2	
Approach LOS		A			A			B			B	

Intersection Summary				
HCM Average Control Delay	10.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	55.7%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	201	81	36	162	42	195	450	46	25	274	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	1731		1719	1753		1641	1703		1641	1721	
Flt Permitted	0.62	1.00		0.54	1.00		0.54	1.00		0.28	1.00	
Satd. Flow (perm)	1121	1731		979	1753		937	1703		487	1721	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	218	88	39	176	46	212	489	50	27	298	7
RTOR Reduction (vph)	0	37	0	0	23	0	0	9	0	0	2	0
Lane Group Flow (vph)	14	269	0	39	199	0	212	530	0	27	303	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	10%	10%	10%	10%	10%	10%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Effective Green, g (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	448	692		392	701		375	681		195	688	
v/s Ratio Prot		c0.16			0.11			c0.31			0.18	
v/s Ratio Perm	0.01			0.04			0.23			0.06		
v/c Ratio	0.03	0.39		0.10	0.28		0.57	0.78		0.14	0.44	
Uniform Delay, d1	7.3	8.5		7.5	8.1		9.3	10.5		7.6	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.6		0.5	1.0		6.1	8.5		1.5	2.0	
Delay (s)	7.4	10.2		8.0	9.1		15.4	19.0		9.1	10.8	
Level of Service	A	B		A	A		B	B		A	B	
Approach Delay (s)		10.1			9.0			18.0			10.6	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	
Agency/Co.	*Hanford*
Date Performed	*12/18/2024*
Analysis Time Period	*AM Peak*

Site Information

Intersection	*9 1/4 at Florinda*
Jurisdiction	
Analysis Year	*Existing plus Project*

Project Description *Copper Ridge*

East/West Street: *Florinda* | North/South Street: *9 1/4*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*57*	*144*			*237*	*141*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*57*	*144*	*0*	*0*	*237*	*141*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*60*	*0*	*42*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*60*	*0*	*42*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*57*						*102*	
C (m) (veh/h)	*1180*						*546*	
v/c	*0.05*						*0.19*	
95% queue length	*0.15*						*0.68*	
Control Delay (s/veh)	*8.2*						*13.1*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*13.1*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	*9 1/4 at Florinda*
Agency/Co.	*Hanford*	Jurisdiction	
Date Performed	*12/18/2024*	Analysis Year	*Existing plus Project*
Analysis Time Period	*PM Peak*		

Project Description *Copper Ridge*

East/West Street: *Florinda*	North/South Street: *9 1/4*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*26*	*288*			*190*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*26*	*288*	*0*	*0*	*190*	*96*
Percent Heavy Vehicles	*2*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*29*	*0*	*38*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*29*	*0*	*38*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*26*						*67*	
C (m) (veh/h)	*1276*						*612*	
v/c	*0.02*						*0.11*	
95% queue length	*0.06*						*0.37*	
Control Delay (s/veh)	*7.9*						*11.6*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*11.6*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	9 1/4 at Leland
Agency/Co.	Hanford	Jurisdiction	
Date Performed	12/18/2024	Analysis Year	Existing plus Project
Analysis Time Period	AM Peak		

Project Description copper Ridge

East/West Street: Leland | North/South Street: 9 1/4

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		14	235	29	37	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	14	235	29	37	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	200	0	4			
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	200	0	4	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (veh/h)		29		204				
C (m) (veh/h)		1328		752				
v/c		0.02		0.27				
95% queue length		0.07		1.10				
Control Delay (s/veh)		7.8		11.6				
LOS		A		B				
Approach Delay (s/veh)	--	--	11.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst		Intersection	9 1/4 at Leland
Agency/Co.	Hanford	Jurisdiction	
Date Performed	12/18/2024	Analysis Year	Existing plus Project
Analysis Time Period	PM Peak		

Project Description: copper Ridge

East/West Street: Leland | North/South Street: 9 1/4

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		32	107	16	51	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	32	107	16	51	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	155	0	16			
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	155	0	16	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (veh/h)		16		171				
C (m) (veh/h)		1457		830				
v/c		0.01		0.21				
95% queue length		0.03		0.77				
Control Delay (s/veh)		7.5		10.5				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.5					
Approach LOS	--	--	B					

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Appendix H

VMT Analysis

VEHICLE MILES TRAVELED ANALYSIS

COPPER RIDGE MIXED-USE PROJECT

CITY OF HANFORD

KINGS COUNTY, CALIFORNIA

This Vehicle Miles Traveled Analysis has been prepared under the supervision of
Ambarish Mukherjee, P.E.

LSA

January 2025

VEHICLE MILES TRAVELED ANALYSIS

COPPER RIDGE MIXED-USE PROJECT

CITY OF HANFORD

KINGS COUNTY, CALIFORNIA

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1.0 EXECUTIVE SUMMARY

The proposed Copper Ridge Mixed-Use Project will be a mixed-use development including 350 single-family homes, 300 multifamily units, and approximately a total of 37,700 square feet (sf) of commercial uses, including 28,330 sf retail, two fast-food restaurant with drive-through window of areas 2,153 sf and 2,318 sf, and a gas station with approximately 4,899 sf convenience store. Additionally, the project would include parks/open space areas within the community. The proposed project would be located in the northeast corner of Grangeville Boulevard and 9 ¼ Avenue. in the City of Hanford (City), Kings County, CA. Figure 1-1 illustrates the regional and project location of the proposed project.

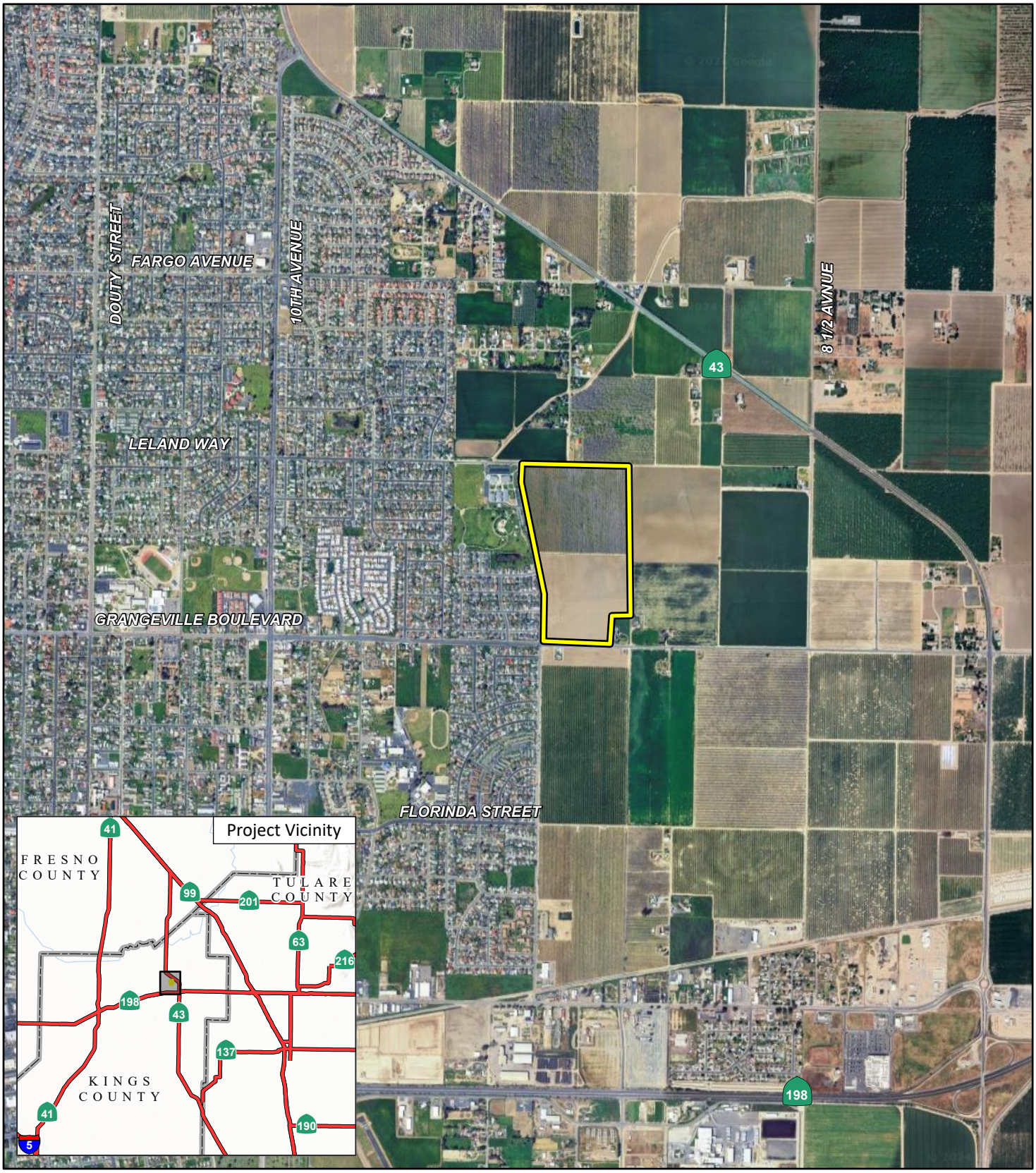
Access to the project will be provided by four driveways on 9 1/4th Avenue, three driveways on Leland Way, and one driveway on Grangeville Boulevard. Figure 1-2 illustrates the preliminary conceptual site plan of the proposed project.

The City has recently adopted the *City of Hanford VMT Thresholds and Implementation Guidelines* (VMT Guidelines), dated November 2022. Based on the VMT Guidelines, the project being a mixed-use project, individual land use components were analyzed separately for purposes of the VMT analysis. The project VMT analysis has been conducted based on the current project description. The retail/commercial component of the project could be screened out using the 55,000 sf screening criteria for retail projects. However, the residential components of the project don't meet any of the screening criteria identified in the VMT Guidelines. The VMT Guidelines further recommends that for projects/components of a project that could not be screened out using the project screening criteria, a detailed VMT analysis should be conducted using the methodology and significant threshold criteria identified in it.

Based on the VMT analysis, the residential component's VMT is lower than the significant impact thresholds identified in the City's VMT Guidelines. As such, the residential component of the project won't have any significant transportation impact under CEQA. Therefore, given the retail component of the project is screened out, the entire project won't have any significant VMT impact.

1.1 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Conceptual Site Plan



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LEGEND

Project Location

FIGURE 1-1

N

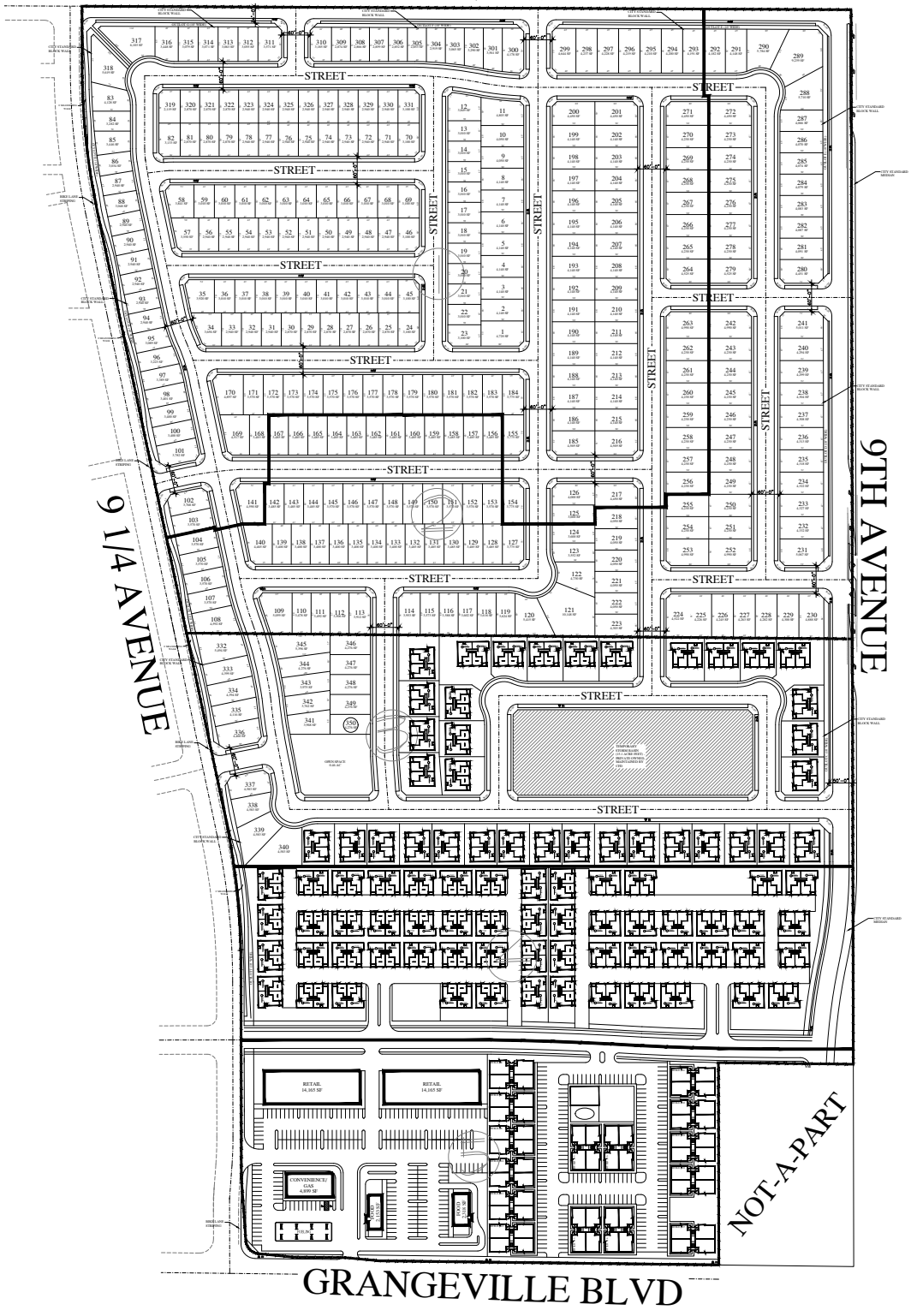
0 1000 2000

FEET

Copper Ridge Mixed-Use Project
Vehicle Miles Traveled Analysis
Regional and Project Location

SOURCE: ESRI Streetmap, 2021; Google Earth 2024.

P:\2024\20242098 Copper Ridge\GIS\20242098 Copper Ridge\20242098 Copper Ridge.aprx (1/13/2025)



LSA

FIGURE 1-2

N

0 160 320

FEET

Copper Ridge Mixed-Use Project
Vehicle Miles Traveled Analysis

Conceptual Site Plan

SOURCE: AWEngineering, January 2025

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2.0 VEHICLE MILES TRAVELED ANALYSIS

2.1 BACKGROUND

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on Vehicle Miles Traveled (VMT) generated by the project.

The City has adopted the *City of Hanford VMT Thresholds and Implementation Guidelines* (VMT Guidelines) in November 2022. Therefore, the project VMT analysis was conducted using the methodology and significant threshold criteria identified in the City's VMT Guidelines. As previously mentioned, the project includes residential and retail/commercial land uses. As per the VMT Guidelines, mixed-use projects should be evaluated separately for each component of the project. Therefore, each project component was analyzed separately.

2.2 METHODOLOGY

2.2.1 Project VMT Screening Analysis

The VMT Guidelines include multiple screening criteria for small land use projects or project components to be screened out of a detailed VMT analysis.

The screening thresholds and their applicability to the project site are as follows:

- **Transit Priority Area Screening:** The project location was compared against the Transit Priority Area from the City of Hanford VMT Screening Tool. Since the project is not located within any Transit Priority Area, this screening criteria does not apply for the project.
- **Local-serving Retail:** Based on the VMT Guidelines, retail projects with a combined area of less than 55,000 sf could be classified as local-serving and could be screened out from a detailed VMT analysis. As summarized in Chapter 1 of this report, the retail component of the project is approximately 37,700 sf, which is less than 55,000 sf. Therefore, the retail component of the project could be screened out using this criterion and a detailed VMT analysis will not be required for this project component.
- **Redevelopment Project:** The project site is currently vacant. Therefore, this criterion is not applicable for the project.
- **Affordable Housing Project:** The residential component of the project proposes market rate single-family and multifamily residential development. Therefore, this criterion is not applicable for the residential component of project.
- **Average Daily Trip Threshold:** Given the size of the project, the project is estimated to generate significant number of trips and could not be screened using the daily trip threshold criteria, which is 500 daily trips for projects requiring a General Plan Amendment (GPA), and 1,000 daily trips for projects not requiring a GPA.
- **Institutional/Government and Public Service Project:** The project land uses could not be classified as Institutional/government and public service land uses, including police stations,

fire stations, government offices, utilities, public libraries, community centers, and refuse stations. Therefore, this criterion is not applicable for the project.

- **Specific Land Use Screening:** As included in the VMT Guidelines, local parks, daycare centers, student housing projects on or adjacent to a college campus, local serving gas stations, banks, and K–12 public schools could be screened out from detailed VMT analysis. As previously mentioned, the project would include a gas station, which would be part of the commercial component of the project and eligible to be screened out. Also, the park/open space component of the project could be screened out using this criterion and a detailed VMT analysis will not be required.
- **Low VMT Area Screening:** The project site was evaluated using City of Hanford VMT Screening Tool to determine if the project is located within a low VMT area. Per the VMT Screening Tool, the project comprises of Kings County Association of Governments (KCAG) Travel Demand Model's traffic analysis zone (TAZ) # 657. Based on the evaluation, the project is not in a low VMT area for the residential components. As such, the project's residential components could not be screened out using this criterion.

As noted above, the retail component of the project is screened out using the screening criteria and no further VMT analysis would be required for that component. However, the residential components of the project don't meet any of the screening criteria identified in the guidelines. Therefore, a detailed VMT analysis was conducted to evaluate the VMT impact of these residential components.

2.2.2 VMT Metrics and Thresholds

The VMT Guidelines provide guidance regarding VMT analysis based on land use types. It recommends use of VMT per capita metric to evaluate residential land uses, and VMT per employee for office uses.

The VMT Guidelines also established Kings County as the region and 13 percent as the threshold for comparison of VMT metrics. Therefore, if the project VMT per capita exceeds 87 percent of corresponding Kings County baseline average VMT per capita, the residential component of the project would have a significant VMT impact.

For projects that require a detailed VMT analysis, the guidelines recommend use of KCAG model to conduct the VMT analysis. Therefore, KCAG model was used for the VMT evaluation of the project. Numerical values for the VMT metric threshold have been obtained from Table E: Significance Thresholds for VMT Analysis of the VMT Guidelines.

2.2.3 Project Traffic Analysis Zone Update

To calculate the project VMT, the first step was to update the TAZs in the model that include the project area. The project should be isolated in the travel model to estimate project VMT. The KCAG model includes ability to split or add new TAZ. Therefore, three separate TAZs were added to the model to incorporate the project's single-family, multifamily, and retail land uses. Single-family and multifamily residential uses have been separated into two TAZs because they have different household characteristics such as household size and household income. Typically, single-family residential developments have a higher household size, higher auto ownership, and higher income

compared to multifamily developments. Creating new TAZs for the project help isolate project VMT and determine project specific VMT impact.

KCAG model is a socioeconomic data-based model. Therefore, in addition to the number of households, the model requires other household characteristics such as household income and household size as inputs to the socioeconomic database. The household attributes such as size and income determine the number of trips and their trip lengths. For example, based on ITE *Trip Generation Manual*, (11th edition), a single-family dwelling unit will have 9.4 daily trips, whereas a multifamily unit will have 6.7 daily trips in average. Generally, higher household sizes contribute to higher number of trips and similarly higher income households have more and longer trips. The trip rates in the travel model are disaggregated by different household attributes which are based on regional household travel survey, and census data. These household variables for the project dwelling units were obtained from similar TAZs within the City. Appropriate socioeconomic data for each of the residential land uses were included in the model prior to conducting the VMT analysis model run.

It should be noted that though the retail component of the project was screened out, one separate TAZ was created in the model to include the retail land uses. Inclusion of retail uses will appropriately reflect the internal capture within the project. This is because, presence of retail in proximity of residential uses will help reduce the overall VMT of the project. The retail land use was converted to model socioeconomic data. The land use to employee conversion factors were developed using ITE *Trip Generation Manual*, 11th edition for project retail uses. The ITE trip generation manual includes trip generation rates for different land use categories by different units such as square footage, number of units, and/or number of employees. Employee/square footage rate was determined for these uses by dividing the daily trip rate per 1,000 sf by daily trip rate per employee. This ratio was used to estimate number of employees per square feet for the retail use which in turn was used to estimate total project retail employees. Model run was conducted for this updated model after incorporating the project land uses as described above. The outputs from this updated model run were utilized to estimate project specific VMT metrics. No project specific roadway network modifications were conducted for the model runs.

2.3 VMT ANALYSIS

Table 2-A shows the result of the VMT analysis for the residential component of the project. As shown in Table 2-A, VMT per capita for residential component of the project is lower than the regional threshold. As such, based on the VMT analysis, the residential component will not have any significant VMT impact. As such, since all the components of the project could be either screened out or would have a less than significant VMT impact, the entire project will have a less than significant VMT impact.

Detailed VMT calculation for the project is included in Appendix A.

2.4 LIST OF CHAPTER 2.0 TABLES

- Table 2-A: Regional Threshold and Project VMT

Table 2-A: Regional Thresholds and Project VMT

Metric	Threshold[1]	Project	Difference
VMT per Capita	8.99	8.98	(0.01)

Source: KCAG Model.
The Kings County VMT per capita was obtained from City of Hanford VMT Guidelines, (November 2022).
VMT = vehicle miles traveled

APPENDIX A:

VMT CALCULATIONS

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Appendix A - VMT Calculation - Copper Ridge Residential Componenet

Table 1 - VMT per Capita Calculations

2015	Total Project Residential	Threshold
Households (a)	650	
Population (b)	1,805	
Homebased (HB) VMT ('c)	16,215	
HB VMT per capita (d = c/b)	8.98	8.99

Source: KCAG Model

The Kings County VMT per capita threshold was obtained from City of Hanford VMT Guidelines, (November 2022).

VMT = vehicle miles traveled